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SEARCH REQUEST FORM

Requestor's Name: M. MEDLEY Serial Number: 09/226,409

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Applicant C.H. SCHLEYER Filing Date 1-6-99

Search Topic:

Please write a detailed statement of search topic. Describe specifically as possible the subject matter to be searched. Define any terms that may have a special meaning. Give examples or relevent citations, authors, keywords, etc., if known. For sequences, please attach a copy of the sequence. You may include a copy of the broadest and/or most relevent claim(s). Looking for gasoline with specific properties claimed

1. An unleaded EPA compliant gasoline pump fuel which provides total emissions no higher than those provided by fuels allowed under CARB regulations for Clean Burning Gasolines (CBG), Title 13 California Code of Regulations, Sections 2260 et seq., which has the following properties:

T_{10}, °F	<=140
T_{50}, °F	>210
T_{90}, °F	<330
RVP, psi	<=7.0
S, ppmw.	<=50
Oxygen, wt. pct.	<=3.5
Aromatics, vol. pct	<=35
Olefins, vol. pct.	<=10
Benzene, vol. pct.	>=1.0
Paraffins, vol. pct.	<=75
API°	>=59
Octane, (R+M)/2	>=87

2. A fuel according to claim 1 which has T_{50} of from 211°F to 215°F.

3. A fuel according to claim 2 which has a T_{50} of 211°F to 213F.

4. A fuel according to claim 2 which has an RVP of 6.6 to 6.9 psi.

STAFF USE ONLY

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___ Structure
✓ Bibliographic

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___ IG
✓ STN
___ Dialog
___ APS
___ Geninfo
___ SDC
___ DARC/Questel
___ Other

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L2           24 SEA FILE=APILIT ABB=ON  PLU=ON  T50
L4           25 SEA FILE=APILIT ABB=ON  PLU=ON  'T(SUB)5(SUB)0'
L5           25 SEA FILE=APILIT ABB=ON  PLU=ON  L4 AND (FUEL# OR GAS?)
L27           2 SEA FILE=APIPAT ABB=ON  PLU=ON  L5 OR L2

=> d all 1-2 127
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L27 ANSWER 1 OF 2 APIPAT COPYRIGHT 1999 DERWENT/ELSEVIER
AN 1998:1415 APIPAT;APIPAT2
DN 9820652
TI Composition of lead-free petrol - comprises polyether amine-containing cleaner, has specific octane value and satisfies expressions relating content of aromatic hydrocarbon and distillation temperature
PA IDEMITSU KOSAN CO LTD
PI JP 9286992 19971104
AI JP 1997-4591 19970114
PRAI JP 1996-33751 19960221
FI JP 9286992 19971104
OS DERWENT 98028196
AB A composition of lead-free petrol contains a polyether amine-containing cleaner in an amount of at least 70 wt. ppm, has an octane value of at least 89 and satisfies expressions **T50** + T70 + 1.5 x T90 at most 415 (I); **T50** + T70 + 1.5 x T90 at most -10 x V + 665 (II); and **T50** + T70 + 1.5 x T90 at most 465 (III). In (I), (II) and (III), V = the content (vol.%) of aromatic hydrocarbon; **T50** = 50 vol.% distillation temp. (deg. C); T70 = 70 vol.% distillation temp. (deg. C); and T90 = 90 vol.% distillation temp. (deg. C). USE - For petrol engines. (11pp Dwg.No.0/0)
IC C10L001-06; C10L001-22
CC MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT ADDITIVE; AROMATIC; BOILING POINT; COMPOSITION; COMPOUNDS; CONCENTRATION; DETERGENT ADDITIVE; ENGINE; EQUATION; ETHER; FUEL PERFORMANCE; INTERNAL COMBUSTION ENGINE; MATHEMATICS; MODIFIED HOMOPOLYMER; MONOAMINE; *MOTOR FUEL; *MOTOR GASOLINE; MULTIAMINE; OCTANE NUMBER; PHYSICAL PROPERTY; POLYETHER; SPARK IGNITION ENGINE; TRANSITION TEMPERATURE; *UNLEADED GASOLINE
LT ADDITIVE; COMPOUNDS; DETERGENT ADDITIVE; ETHER; MODIFIED HOMOPOLYMER; MONOAMINE; MULTIAMINE; POLYETHER
ATM Template not available

L27 ANSWER 2 OF 2 APIPAT COPYRIGHT 1999 DERWENT/ELSEVIER
AN 94:12026 APIPAT;APIPAT2
DN 9424989
TI Lead-free petrol for two stroke engines - contains specified portions of satd., olefin and aromatic components for high storage stability
PA COSMO OIL CO LTD; COSMO PETROTECH KK; COSMO SOGO KENKYUSHO KK
PI JP 6248280 940906
AI JP 1993-61371 930226
PRAI JP 1993-61371 930226
FI JP 6248280 940906
OS DERWENT 94322431
AB Lead-free petrol has a density of 0.65-0.78 g/cm3 (15 deg.C), a Reid vapour pressure of 0.45-0.95 kgf/cm2 (37.8 deg.C) and a 50%-distn. temp., **T50**, of 80-110 deg.C and contains at least 70 vol.% of the satd. portion, 0-15 vol.% of the olefin portion and 5-25 vol.% of the aromatic portion. Also claimed is a mixed petrol contg. 1/20 to 1/100 vol.% of the lead-free gasoline. Base materials include light naphtha prepd. by

fractionating the naphtha fraction, cracked gasoline obtd. by catalytic and hydrogenation cracking, reformed gasoline obtd. by catalytic reforming and alkylates obtd. by alkylating hydrocarbons, such as isobutane, with a lower olefin. The gasolines contain pref. an antioxidant(s) and more pref. a cleaning dispersant(s), a metal-deactivating agent(s) and/or a preservative(s). The antioxidant is e.g. 2,6-di-tert-butyl-4-methyl phenol. USE/ADVANTAGE - The lead-free and mixed petrols have high storage stability: typically prepd. samples showed no deterioration of performance after two-month storage. (6pp Dwg.No.0/0)

IC C10L001-04; C10L001-06; C10L001-14

CC MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 128-37-0; 75-28-5; 2-METHYLPROPANE; ADDITIVE; ALKYLATION; AROMATIZATION; BENZENE RING; BOILING POINT; BRANCHED CHAIN; C13-16; C4; CATALYTIC CRACKING; CATALYTIC REFORMING; COMPOSITION; DEGREE OF UNSATURATION; DENSITY; DETERGENT ADDITIVE; DI-TERT-BUTYLCRESOL; DISTILLATION; *ENGINE; GASOLINE STOCK; HYDROCARBON; HYDROCRACKING; LIGHT NAPHTHA; METAL DEACTIVATOR; MONOHYDROXY; *MOTOR FUEL; *MOTOR GASOLINE; NAPHTHA; OXIDATION INHIBITOR; PETROLEUM DISTILLATE; PETROLEUM FRACTION; PHYSICAL PROPERTY; PHYSICAL SEPARATION; PRIOR TREATMENT; REID VAPOR PRESSURE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; *STORAGE STABILITY; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *TWO CYCLE ENGINE; *UNLEADED GASOLINE; *USE; VAPOR PRESSURE

LT 75-28-5; 2-METHYLPROPANE; BRANCHED CHAIN; C4; HYDROCARBON; SATURATED CHAIN; SINGLE STRUCTURE TYPE

LT 128-37-0; ADDITIVE; BENZENE RING; BRANCHED CHAIN; C13-16; DI-TERT-BUTYLCRESOL; MONOHYDROXY; OXIDATION INHIBITOR; SATURATED CHAIN; USE

LT ALKYLATION; AROMATIZATION; CATALYTIC CRACKING; CATALYTIC REFORMING; HYDROCRACKING; PRIOR TREATMENT

ATM Template not available

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L4            25 SEA FILE=APILIT ABB=ON  PLU=ON  'T(SUB)5(SUB)0'
L5            25 SEA FILE=APILIT ABB=ON  PLU=ON  L4 AND (FUEL# OR GAS?)

=> d all 1-25
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L5 ANSWER 1 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 1998:18235 APILIT;APILIT2
DN 4508446
TI Synthesis, structure, and catalytic properties of Fe-substituted barium hexaaluminates
AU Naoufal D; Millet J M; Brulle Y; Garbowski E; Primet M
CS Universite Claude Bernard Lyon; Institut de Recherches sur la Catalyse; Gaz de France
SO Catalysis Letters V54 N.3 141-48 (1998) ISSN: 1011-372X
DT Journal
LA English
AB Synthesis, structure, and catalytic properties of Fe-substituted barium hexaaluminates. The parent barium hexaaluminate BaAl(sub)1(sub)2O(sub)1(sub)9 and four iron-substituted hexaaluminates BaFe(sub)xAl(sub)1(sub)2(sub)-(sub)xO(sub)1(sub)9 (x = 1, 2, 3, or 4) were synthesized via a published sol-gel method. After calcination at 1200.degree.C in O(sub)2 for 24 hr, all samples had the same .beta.-alumina crystalline structure, based on XRD data. Moessbauer spectra indicated Fe(sup)3(sup)+ ions located in four different octahedral sites. When tested in methane combustion, using a feed containing 1 vol % methane and 4% O(sub)2 in N(sub)2, the parent hexaaluminate had very low activity. Incorporation of Fe(sup)3(sup)+ sharply increased the activity, resulting in **T(sub)5(sub)0** and T(sub)9(sub)0 values (temperatures for 50 and 90% methane conversion) of .approx. 603.degree.-640.degree. and 705.degree.-747.degree.C, respectively. BaFe(sub)2Al(sub)1(sub)0O(sub)1(sub)9 was the most active, as the specific surface area of the catalysts decreased with increasing Fe loading. Treating the catalysts at 1200.degree.C for 24 hr in an O(sub)2/steam/N(sub)2 mixture had little effect on the activities. The superior thermal stability makes the Fe-substituted barium hexaaluminates excellent candidates for high-temperature catalytic combustion applications, such as **gas** turbines, designed to suppress NO(sub)x emissions. Tables, graphs, and references.
CC CATALYSTS/ZEOLITES; CHEMICAL PRODUCTS; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; PETROLEUM REFINING AND PETROCHEM; POLLUTION-CONTROL CATALYSTS; PURE HYDROCARBONS
CT *11104-93-1; 1344-28-1; *ACTIVITY; AIR POLLUTANT; ALUMINUM-NP; ALUMINUM OXIDE; ANALYTICAL METHOD; ATE-P; BARIUM-P; CALCINING; *CATALYST-*P; *CATALYST ACTIVITY; CATALYST PREPARATION; CATALYST SUPPORT; COLLOID/DISPERSION; *COMBUSTION; COMPOSITION; CONCENTRATION; CRYSTAL; DIFFRACTION ANALYSIS; EFFICIENCY; ELEMENT; ENGINE; **GAS** TURBINE; GEL; GROUP IIA-P; GROUP IIIA-NP; *GROUP VA; *GROUP VIA-*NP; GROUP VIII-P; HIGH TEMPERATURE; *IDE-*NP; ION; IRON-P; LOADING; MATERIAL HANDLING; METHANE CONTENT; *NITROGEN; *NITROGEN OXIDE; OPERATING CONDITION; *OXYGEN-*NP; OXYGEN CONTENT; *PHYSICAL PROPERTY; POLLUTANT; SOL; SPECIFIC SURFACE; STABILITY; STEAM; TEMPERATURE; TEMPERATURE 600 C AND HIGHER; THERMAL PROPERTY; THERMAL STABILITY; TRANSITION METAL-P; TURBINE ENGINE; WASTE MATERIAL; WATER; WATER VAPOR; X RAY DIFFRACTION ANALYSIS; YIELD
LT ALUMINUM-P; ATE-P; BARIUM-P; CATALYST-P; GROUP IIA-P; GROUP IIIA-P; GROUP VIA-P; GROUP VIII-P; IDE-P; IRON-P; OXYGEN-P; TRANSITION METAL-P
LT ELEMENT; GROUP VIA; OXYGEN

LT 1344-28-1; ALUMINUM; ALUMINUM OXIDE; CATALYST SUPPORT; CRYSTAL; GROUP IIIA; GROUP VIA; IDE; OXYGEN
LT ELEMENT; GROUP VA; NITROGEN
LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL
ATM Template not available

L5 ANSWER 2 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 97:6238 APILIT;APILIT2
DN 4402765
TI Thoughts on **fuel**/If you come to a fork in the road, take it
AU Colucci J
CS Automotive Fuels Consulting Inc
SO Fuel Technology & Management V7 N.2 12 (March 1997) ISSN: 1087-4003
DT Journal
LA English
AB Thoughts on **fuel**/If you come to a fork in the road, take it. Based on vehicle drivability studies, conducted in recent years at low, moderate, and high ambient temperatures, an equation was developed that relates the drivability index (DI) to measures of **gasoline** volatility, i.e., DI = 1.5T(sub)1(sub)0 + 3.0T(sub)5(sub)0 + 1.5T(sub)9(sub)0, where T(sub)1(sub)0, **T(sub)5 (sub)0**, and T(sub)9(sub)0 are temperatures (in Fahrenheit degrees) at which respective 10, 50, and 90% of the **fuel** is distilled. The lower the DI of the **gasoline**, the better the drivability performance of the vehicle. Car companies have shown that DI increases on average as the Rvp of summer **gasoline** decreases, and the average DI of premium **gasoline** is .approx. 50 DI points higher than that of regular **gasoline**. Consequently, a DI maximum of 1200 was recommended. Two 1993 studies by CRC and Sun Co support this recommendation. Recent studies by Chevron and GM also confirmed the conclusion of the Auto/Oil Research Program that reducing **gasoline** DI by lowering **T(sub)5(sub)0** and T(sub)9(sub)0 will reduce exhaust hydrocarbon emissions. For the refiners, reducing DI by excluding more volatile fractions would reduce **gasoline** yield per barrel of crude.
CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT *AIR POLLUTANT; AUTOMOBILE; *AUTOMOTIVE EXHAUST **GAS**; CHEVRON; *COMPOUNDS; CONTAINER; DISTILLATION; *DRIVEABILITY; DRUM; *ENGINE PERFORMANCE; *EQUATION; *EXHAUST **GAS**; *HYDROCARBON; *MATHEMATICS; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; NAPHTHA; OPERATING CONDITION; *PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; PREMIUM; PRODUCT QUALITY; REDUCTION REACTION; *REID VAPOR PRESSURE; ROAD; SEASONAL; STANDARD QUALITY; STAR; SUMMER; SUN; TEMPERATURE; *THERMODYNAMIC PROPERTY; *UNBURNED HYDROCARBON; *VAPOR PRESSURE; VOLATILE; *WASTE **GAS**; *WASTE MATERIAL; YIELD
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; PHYSICAL PROPERTY; POLLUTANT; REID VAPOR PRESSURE; SEASONAL; SUMMER; THERMODYNAMIC PROPERTY; UNBURNED HYDROCARBON; VAPOR PRESSURE; WASTE MATERIAL
ATM Template not available

L5 ANSWER 3 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 96:12069 APILIT;APILIT2
DN 4304702
TI Effects of **gasoline** properties on emissions of current and future vehicles - T50, T90 and sulfur effects - Auto/Oil Air Quality Improvement Research Program
AU Rutherford J A; Koehl W J; Benson J D; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B; Reuter R M; Leppard W R
CS Chevron Research & Technology Co; Mobil Research & Development Corp; GM NAO R&D Center; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil Research & Development; Statistics PLUS; ARCO Products Co; Ford Motor Co; Texaco Inc

SO SAE Special Publication N.SP-1117 167-87 (1995) (SAE Paper #952510)
DT Report
LA English
AB Effects of **gasoline** properties on emissions of current and future vehicles - **T(sub)5(sub)**
0, T(sub)9(sub)0 and sulfur effects - Auto/Oil Air Quality Improvement Research Program. See Abstract No. 42-7019 or 42-34017.
CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT *AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE ENGINE; *AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CHEVRON; COMPOSITION; COMPOUNDS; CONCENTRATION; DISTILLATION; *ECONOMIC FACTOR; ENGINE; ENGINE TEST; ESSO; *EXHAUST **GAS**; FULL SCALE; GOVERNMENT; GROUP VIA; IMPURITY; INTERNAL COMBUSTION ENGINE; MATERIALS TESTING; MEETING PAPER; MOBIL OIL; MODEL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; NATIONAL; NORTH AMERICA; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; *POLLUTION CONTROL; PROTOTYPE; SAE; SPARK IGNITION ENGINE; SPECIFICATION; SULFUR; SULFUR CONTENT; TEXACO; TRANSITION TEMPERATURE; USA; *USE; *WASTE **GAS**; *WASTE MATERIAL
LT MODEL; MOTOR VEHICLE; PROTOTYPE
LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR
ATM Template not available

L5 ANSWER 4 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 96:12065 APILIT;APILIT2
DN 4304698
TI Effects of **gasoline** properties (T50, T90, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Speciation analysis...The Auto/Oil Air Quality Improvement Research Program
AU Leppard W R; Koehl W J; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B H; Reuter R M; Rutherford J A; Benson J D
CS GM Research & Development Center; Mobil Research & Development Corp; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil Research & Development; Statistics PLUS; ARCO Products Co; Ford Motor Co; Texaco Inc; Chevron Research & Technology
SO SAE Special Publication N.SP-1117 35-56 (1995) (SAE Paper #952505)
DT Report
LA English
AB Effects of **gasoline** properties (**T(sub)**
5(sub)0, T(sub)9(sub)0, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Speciation analysis...The Auto/Oil Air Quality Improvement Research Program. See Abstract No. 42-7015 or 42-34032.
CC AIR POLLUTION CONTROL; AIR POLLUTION SOURCES; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT ACTIVITY; AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CATALYST; CATALYTIC MUFFLER; CHEVRON; COMBUSTION; COMPOSITION; *COMPOUNDS; CONCENTRATION; *ECONOMIC FACTOR; EFFICIENCY; ENGINE; ESSO; EXHAUST **GAS**; GROUP VIA; *HYDROCARBON; IMPURITY; INTERNAL COMBUSTION ENGINE; MEETING PAPER; MOBIL OIL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MUFFLER; PHYSICAL PROPERTY; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; SAE; SPARK IGNITION ENGINE; SULFUR; SULFUR CONTENT; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; *UNBURNED HYDROCARBON; *USE; WASTE **GAS**; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR
ATM Template not available

L5 ANSWER 5 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 96:12064 APILIT;APILIT2
DN 4304697
TI Effects of **gasoline** properties (T50, T90, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Modal analysis...The Auto/Oil Air Quality Improvement Research Program
AU Leppard W R; Koehl W J; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B H; Reuter R M; Rutherford J A; Benson J D
CS GM Research & Development Center; Mobil Research & Development Corp; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil & Development; Statistics PLUS; ARCO Products Co; Ford Motor Co; Texaco Inc; Chevron Research & Technology
SO SAE Special Publication N.SP-1117 21-34 (1995) (SAE Paper #952504)
DT Report
LA English
AB Effects of **gasoline** properties (**T(sub) 5(sub)0**, T(sub)9(sub)0, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Modal analysis...The Auto/Oil Air Quality Improvement Research Program. See Abstract No. 42-7014 or 42-34031.
CC AIR POLLUTION CONTROL; AIR POLLUTION SOURCES; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT ACTIVITY; AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CALIFORNIA; CATALYST; CATALYST ACTIVITY; CATALYTIC MUFFLER; CHEVRON; COMPOSITION; *COMPOUNDS; DISTILLATION; DISTRICT 5; *ECONOMIC FACTOR; EFFICIENCY; ENGINE; ENGINE TEST; ESSO; EXHAUST **GAS**; GOVERNMENT; GROUP VIA; *HYDROCARBON; IMPURITY; INTERNAL COMBUSTION ENGINE; MATERIALS TESTING; MEETING PAPER; MOBIL OIL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MUFFLER; NATIONAL; NORTH AMERICA; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; *REFORMULATED **GASOLINE**; SAE; SPARK IGNITION ENGINE; SULFUR; SULFUR CONTENT; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; *UNBURNED HYDROCARBON; USA; *USE; WASTE **GAS**; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR
LT ASSOCIATION; MEETING PAPER; SAE
ATM Template not available

L5 ANSWER 6 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 95:18310 APILIT;APILIT2
DN 4207019
TI Effects of **gasoline** properties on emissions of current and future vehicles...T50, T90, and sulfur effects...Auto/Oil Air Quality Improvement Research Program [(AQIRP)]
AU Rutherford J A; Koehl W J; Benson J D; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B; Reuter R M; Leppard W R
CS Chevron Research & Technology Co; Mobil Research & Development Corp; GM NAO R&D Center; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil Research & Development; Statistics PLUS; Arco Products Co; Ford Motor Co; Texaco Inc
SO SAE Fuels & Lubricants Meeting (Toronto 10/16-19/95) SAE Meeting Paper N.952510 (1995) 23P ISSN: 0148-7191
DT Conference
LA English
AB Effects of **gasoline** properties on emissions of current and future vehicles...**T(sub)5(sub)** 0, T(sub)9(sub)0, and sulfur effects...Auto/Oil Air Quality Improvement Research Program [(AQIRP)]. Exhaust emissions were measured with a **fuel** matrix designed to expand on the AQIRP work by studying potential interactive effects of **fuel T(sub)5(sub)0** and T(sub)9(sub)0

(temperature at which 50 or 90% of a **fuel** distills in a standard test) and **fuel** sulfur content. This **fuel** matrix was also used to study whether **fuel** effects found in prior work with then-current vehicle technology can be expected to continue in future lower emission vehicles. An additional pair of **fuels** extended range of T(sub)9(sub)0. The vehicles were half of the AQIRP Current fleet (10 vehicles) used in prior studies, and two new fleets of six vehicles each. One new fleet was designed to the 1994 Federal Tier 1 standards and the other was Advanced Technology prototypes targeted for lower emission levels of 1995 and later. Six **fuels** were tested in the fleets with **fuels T(sub)5(sub)**
0 and T(sub)9(sub)0 designed to vary independently at a fixed low sulfur level. **Fuel** effects appeared sufficiently consistent among the test fleets that **fuel** effect predictions based on the current fleet data should continue as generally valid for vehicles equipped with newer emission control technology. Diagram, tables, graphs, and 11 references.

CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT *AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE ENGINE; *AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CHEVRON; COMPOSITION; COMPOUNDS; CONCENTRATION; DISTILLATION; *ECONOMIC FACTOR; ENGINE; ENGINE TEST; ESSO; *EXHAUST **GAS**; FULL SCALE; GOVERNMENT; GROUP VIA; IMPURITY; INTERNAL COMBUSTION ENGINE; MATERIALS TESTING; MEETING PAPER; MOBIL OIL; MODEL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; NATIONAL; NORTH AMERICA; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; *POLLUTION CONTROL; PROTOTYPE; SAE; SPARK IGNITION ENGINE; SPECIFICATION; SULFUR; SULFUR CONTENT; TEXACO; TRANSITION TEMPERATURE; USA; *USE; *WASTE **GAS**; *WASTE MATERIAL

LT *COMPOUNDS; GROUP VIA; IMPURITY; SULFUR*

LT MODEL; MOTOR VEHICLE; PROTOTYPE

ATM Template not available

L5 ANSWER 7 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 95:18306 *APILIT;APILIT2*

DN 4207015

TI Effects of **gasoline** properties (T50, T90, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Speciation analysis...The Auto/Oil Air Quality Improvement Research Program

AU Leppard W R; Koehl W J; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B H; Reuter R M; Rutherford J A; Benson J D

CS GM Research & Development Center; Mobil Research & Development Corp; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil Research & Development; Statistics PLUS; Arco Products Co; Ford Motor Co; Texaco Inc; Chevron Research & Technology

SO SAE Fuels & Lubricants Meeting (Toronto 10/16-19/95) SAE Meeting Paper N.952505 (1995) 24P ISSN: 0148-7191

DT Conference

LA English

AB Effects of **gasoline** properties (**T(sub)**
5(sub)0, T(sub)9(sub)0, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Speciation analysis...The Auto/Oil Air Quality Improvement Research Program. Species analyses on engine-out and tailpipe hydrocarbon mass emissions were conducted to better understand why **fuels** with higher **T**
(sub)5(sub)0 and/or T(sub)9(sub)0
distillation temperatures produce higher engine-out and tailpipe hydrocarbon emissions and why **fuels** with higher T(sub)9(sub)0 distillation temperatures produce higher engine-out and tailpipe specific reactivities. Species analyses were also performed to examine the effects of **fuel** sulfur level on engine-out and tailpipe species and specific *reactivities. Individual hydrocarbon species concentrations* in the engine-out and tailpipe correlated linearly with the concentrations of

the same species in the **fuel**, implying that a small fraction of **fuel** escaped combustion and conversion over the catalyst. About half of the engine-out and tailpipe hydrocarbons consisted of unreacted **fuel**. Engine-out, tailpipe, and **fuel** specific reactivities correlated with one another and all decreased with decreasing **fuel** T(sub)9(sub)0. Decreasing sulfur had no effect on engine-out hydrocarbon mass or species but decreased tailpipe hydrocarbon mass by decreasing conversion inefficiencies of all hydrocarbon species. Tables, graphs, and 20 references.

CC AIR POLLUTION CONTROL; AIR POLLUTION SOURCES; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT ACTIVITY; AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CATALYST; CATALYTIC MUFFLER; CHEVRON; COMBUSTION; COMPOSITION; *COMPOUNDS; CONCENTRATION; *ECONOMIC FACTOR; EFFICIENCY; ENGINE; ESSO; EXHAUST **GAS**; GROUP VIA; *HYDROCARBON; IMPURITY; INTERNAL COMBUSTION ENGINE; MEETING PAPER; MOBIL OIL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MUFFLER; PHYSICAL PROPERTY; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; SAE; SPARK IGNITION ENGINE; SULFUR; SULFUR CONTENT; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; *UNBURNED HYDROCARBON; *USE; WASTE **GAS**; WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR

ATM Template not available

L5 ANSWER 8 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 95:18305 APILIT;APILIT2

DN 4207014

TI Effects of **gasoline** properties (T50, T90, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Modal analysis...The Auto/Oil Air Quality Improvement Research Program

AU Leppard W R; Koehl W J; Burns V R; Hochhauser A M; Knepper J C; Painter L J; Rapp L A; Rippon B H; Reuter R M; Rutherford J A; Benson J D

CS GM Research & Development Center; Mobil Research & Development Corp; Chrysler Motors Corp; Exxon Research & Engineering Co; Amoco Oil Research & Development; Statistics PLUS; Arco Products Co; Ford Motor Co; Texaco Inc; Chevron Research & Technology

SO SAE Fuels & Lubricants Meeting (Toronto 10/16-19/95) SAE Meeting Paper N.952504 (1995) 16P ISSN: 0148-7191

DT Conference

LA English

AB Effects of **gasoline** properties (**T(sub) 5(sub)0**, T(sub)9(sub)0, and sulfur) on exhaust hydrocarbon emissions of current and future vehicles: Modal analysis...The Auto/Oil Air Quality Improvement Research Program. Modal analyses, conducted to better understand why **fuels** with higher **T (sub)5(sub)0** and/or T(sub)9(sub)0 distillation temperatures produce higher engine-out hydrocarbon and higher tailpipe hydrocarbon emissions, showed that the higher tailpipe hydrocarbon emissions from **fuels** with high **T(sub)5(sub)0** and/or T(sub)9(sub)0 distillation temperatures are mainly from the **fuels** producing higher engine-out hydrocarbon emissions during the first Federal Test Procedure (FTP) cycle. During the rest of FTP, the **fuels** produce a modest and consistent increase in engine-out emissions. Since catalytic converters are only just becoming active during the first cycle, these higher engine-out emissions are passed on, increasing tailpipe emissions. Increased **fuel** sulfur had no effect on engine-out hydrocarbon emissions by decreasing catalytic conversion efficiency. Most of the drop in tailpipe hydrocarbon emissions from a CA Phase II reformulated **gasoline** vs. an 1988 Industry Average **gasoline** was from reduced **fuel** sulfur. Reduced

T(sub)5(sub)0 and
T(sub)9(sub)0 distillation temperatures also contributed to reduced tailpipe hydrocarbon emissions. Tables, graphs, and 14 references.

CC AIR POLLUTION CONTROL; AIR POLLUTION SOURCES; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT ACTIVITY; AIR POLLUTANT; AMOCO; *AQIRP; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST **GAS**; BOILING POINT; CALIFORNIA; CATALYST; CATALYST ACTIVITY; CATALYTIC MUFFLER; CHEVRON; COMPOSITION; *COMPOUNDS; DISTILLATION; DISTRICT 5; *ECONOMIC FACTOR; EFFICIENCY; ENGINE; ENGINE TEST; ESSO; EXHAUST **GAS**; GOVERNMENT; GROUP VIA; *HYDROCARBON; IMPURITY; INTERNAL COMBUSTION ENGINE; MATERIALS TESTING; MEETING PAPER; MOBIL OIL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MUFFLER; NATIONAL; NORTH AMERICA; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; *REFORMULATED **GASOLINE**; SAE; SPARK IGNITION ENGINE; SULFUR; SULFUR CONTENT; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; *UNBURNED HYDROCARBON; USA; *USE; WASTE **GAS**; WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR

ATM Template not available

L5 ANSWER 9 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 95:18303 APILIT;APILIT2

DN 4207012

TI Effects of California Phase 2 reformulated **gasoline** regulations on exhaust emission reduction--2

AU Takei Y; Uehara T; Hoshi H; Sugiyama S; Okada M

CS Toyota Motor Corp

SO SAE Fuels & Lubricants Meeting (Toronto 10/16-19/95) SAE Meeting Paper N.952502 (1995) 13P ISSN: 0148-7191

DT Conference

LA English

AB Effects of California Phase 2 reformulated **gasoline** regulations on exhaust emission reduction--2. The 50 and 90% distillation temperature (**T(sub)5(sub)0** and
T(sub)9(sub)0), aromatics, olefins, and sulfur content are regulated in California Phase 2 Reformulated **Gasoline**. The effects of these properties on exhaust emissions were studied. Twelve test **fuels** with little interaction between **T(sub)5(**
sub)0, T(sub)9(sub)0, aromatics, and olefins were prepared. Exhaust emissions were measured using a TLEV car according to the 1975 Federal Test Procedure. **T(sub)5(**
sub)0 had a large effect on exhaust hydrocarbon emissions. T(sub)9(sub)0 also affected hydrocarbon emissions. The results suggest an optimum range of **T(sub)5(**
sub)0 and T(sub)9(sub)0 to lower exhaust hydrocarbon emissions. The effects of sulfur on exhaust emissions were also studied. A Pt/Rh type catalyst (production type) and a Pd type catalyst (prototype) were prepared. These catalysts were put on a 94MY TLEV (Transitional Low Emission Vehicle) car. Increases in sulfur led to increasing exhaust emissions with both catalysts. The effects of sulfur on mileage accumulated emissions were also studied. Diagrams, tables, graphs, and 11 references.

CC AIR POLLUTION CONTROL; CATALYSTS/ZEOLITES; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; POLLUTION-CONTROL CATALYSTS

CT AIR POLLUTANT; AROMATIC; AROMATIC HYDROCARBON; ASSOCIATION; AUTOMOBILE; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE EXHAUST **GAS**; BENZENE RING; BOILING POINT; *CALIFORNIA; CATALYST; CATALYTIC MUFFLER; COMPOSITION; COMPOUNDS; DEGREE OF UNSATURATION; DISTILLATION RANGE; *DISTRICT 5; *ECONOMIC FACTOR; ENGINE

TEST; EXHAUST **GAS**; FULL SCALE; GOVERNMENT; GROUP VIA; GROUP VIII; HYDROCARBON; IMPURITY; *LEGAL CONSIDERATION; MATERIALS TESTING; MEETING PAPER; MODEL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MUFFLER; NATIONAL; *NORTH AMERICA; OLEFIN; PALLADIUM; PHYSICAL PROPERTY; PLATINUM; PLATINUM METALS; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; PROTOTYPE; *REFORMULATED **GASOLINE**; RHODIUM; SAE; SULFUR; SULFUR CONTENT; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON; UNSATURATED; *USA; *USE; WASTE **GAS**; WASTE MATERIAL

LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON

LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR

LT CATALYST; COMPOUNDS; GROUP VIII; PLATINUM; PLATINUM METALS; RHODIUM; USE

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT CATALYST; COMPOUNDS; GROUP VIII; MODEL; PALLADIUM; PLATINUM METALS; PROTOTYPE; USE

LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED

ATM Template not available

L5 ANSWER 10 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 95:4245 APILIT;APILIT2

DN 4201893

TI Benefits of modern refinery information systems for manufacturing cleaner **fuels**

AU Latour P R

CS Setpoint Inc

SO American Energy Week '95 "Pipelines, Terminals & Storage, and Reformulated Fuels" Conference (Houston 1/31-2/2/95) Proceedings Book 2 V2 220-28 (1995)

DT Conference

LA English

AB Benefits of modern refinery information systems for manufacturing cleaner **fuels**. It is shown how the five active Refinery Information Systems/Advanced Process Control (RIS/APC) functions (performance measurement, optimization, scheduling, control, and integration) are used to manufacture new, clean **fuels** competitively. With the current industry spending for this field averaging $0.02-$0.03/bbl crude, many refineries can capture $0.50-$1.00/bbl if the technology is properly used throughout refinery operations, organizations, and businesses. **Gasoline** specifications are expanding from that of interest to the motorist (octane/price/pump) to perhaps ten of interest to governments (Rvp, O(sub)2, sulfur, benzene, aromatics, olefins, T(sub)9(sub)0, **T(sub)5(sub)0**, density, carbon). Diesel specifications may also grow to ten (cetane number, cetane index, sulfur, CFPP, aromatics, polyaromatics, viscosity, density, T(sub)9(sub)0, **T(sub)5(sub) 0**). The role of RIS/APC is expanding for products such as oxygenated **gasoline**, low sulfur diesel and **fuel** oil, RFG, and quality certifications. RIS/APC is used to comply with emissions regulations (air, water, ground), operating permits, and safety. Flow diagrams, diagrams, tables, graph, and 10 references.

CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; MOTOR FUELS; PETROLEUM PROCESSES; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; PROCESS CONTROL & INSTRUMENT.

CT 71-43-2; AIR; AIR POLLUTANT; AROMATIC HYDROCARBON; AUTOMOTIVE EXHAUST **GAS**; BENZENE; BENZENE RING; BUSINESS OPERATION; C6; CERTIFICATION; CETANE NUMBER; COLD FILTER PLUGGING POINT; COMPOSITION; COMPOUNDS; DENSITY; *DIESEL **FUEL**; *ECONOMIC FACTOR; ELEMENT; EXHAUST **GAS**; **FUEL** OIL; **FUEL** PERFORMANCE; GOVERNMENT; GROUP VIA; HEATING **FUEL**; HYDROCARBON; *INDUSTRIAL PLANT; *INFORMATION SERVICE; INVESTMENT; *LEGAL CONSIDERATION; *LICENSE; MANAGEMENT; MEETING PAPER; *MOTOR **FUEL**; MOTOR **GASOLINE** ; OCTANE NUMBER; *OIL REFINERY; OLEFIN; OPERATING CONDITION; OPERATIONS RESEARCH; OPTIMIZATION; OXYGEN; OXYGENATE CONTENT; PHYSICAL PROPERTY;

PLANNING; POLLUTANT; PRICE; *PROCESS CONTROL; PRODUCT QUALITY; PUMP; REID VAPOR PRESSURE; SAFETY; SINGLE STRUCTURE TYPE; SOIL (EARTH); SPECIFICATION; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; UNSATURATED; *USE; VAPOR PRESSURE; VISCOSITY; WASTE **GAS**; WASTE MATERIAL; WATER
LT ELEMENT; GROUP VIA; OXYGEN
LT 71-43-2; BENZENE; BENZENE RING; C6; HYDROCARBON; SINGLE STRUCTURE TYPE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
ATM Template not available

L5 ANSWER 11 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 95:4243 APILIT;APILIT2
DN 4201891
TI Comprehensive analysis of reformulated **gasoline** [(RFG)] and diesel **fuel** using portable FTIR [spectroscopic] instruments
AU Tack L M; Lyons J E; Taylor C M
CS MIDAC Corp
SO American Energy Week '95 "Pipelines, Terminals & Storage, and Reformulated Fuels" Conference (Houston 1/31-2/2/95) Proceedings Book 2 V1 198-201 (1995)
DT Conference
LA English
AB Comprehensive analysis of reformulated **gasoline** [(RFG)] and diesel **fuel** using portable FTIR [spectroscopic] instruments. FTIR spectroscopy is proven technology for comprehensive RFG and diesel **fuel** analysis. The **gasoline** Complex Model, defined in Federal Register document 40 CFR Part 80, restricts sulfur, benzene, Rvp, aromatics, olefins, **T(sub)5(sub) 0**, and T(sub)9(sub)0. An ideal RFG analyzer would analyze these parameters with one sample injection. Robust and accurate FTIR calibrations have been implemented for these RFG parameters except for sulfur. The new EPA mandate on renewable **fuels** encourages use of ethanol splash blending at terminals and obviates the need to analyze denatured ethanol in the field. Since FTIR spectroscopy scans the full spectrum at high resolution, it is possible to find regions in which ethanol content is proportional to IR absorbencies. On 11/1/94, EPA issued final interim rules on the use of detergent additives in all **gasolines** used in the USA. In the final ruling, EPA suggests the use of FTIR spectroscopy to identify detergent additives. EPA rules place restrictions on total aromatics, cetane index, and sulfur content. FTIR is the only technology providing simultaneous measurement for cetane index and total aromatics. Diagram and graphs.
CC ANALYSES AND TESTS; CHEMICAL PRODUCTS; FUEL REFORMULATION; HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; MOTOR FUELS; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 64-17-5; 71-43-2; ABSORPTION SPECTROSCOPY; ADDITIVE; ALCOHOL CONTENT; ANALYTICAL METHOD; ANALYZER; AROMATIC; AROMATIC HYDROCARBON; BENZENE; BENZENE RING; BLENDING; C2; C6; CETANE NUMBER; COMPOSITION; COMPOUNDS; DETERGENT ADDITIVE; *DIESEL **FUEL**; *ECONOMIC FACTOR; ETHANOL CONTENT; ETHYL ALCOHOL; FOURIER TRANSFORM SPECTROSCOPY; **FUEL** PERFORMANCE; HYDROCARBON; INFRARED SPECTROSCOPY; INJECTION; INSTRUMENT; INTERFEROMETRY; *LEGAL CONSIDERATION; MEASURING; MEETING PAPER; MIXING; MONOHYDROXY; *MOTOR **FUEL**; *MOTOR **GASOLINE**; NATIONAL; NORTH AMERICA; OLEFIN; PHYSICAL PROPERTY; PORTABILITY; *REFORMULATED **GASOLINE**; REID VAPOR PRESSURE; SATURATED CHAIN; SIMULTANEOUS; SINGLE STRUCTURE TYPE; SPECTRAL ANALYSIS; *STANDARDIZATION; SULFUR CONTENT; THERMODYNAMIC PROPERTY; UNSATURATED; US ENVIRONMENTAL PROTECTION AGCY; USA; *USE; VAPOR PRESSURE
LT ABSORPTION SPECTROSCOPY; ANALYTICAL METHOD; FOURIER TRANSFORM SPECTROSCOPY; INFRARED SPECTROSCOPY; INTERFEROMETRY; SPECTRAL ANALYSIS
LT 71-43-2; BENZENE; BENZENE RING; C6; HYDROCARBON; SINGLE STRUCTURE TYPE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
LT 64-17-5; ADDITIVE; C2; ETHYL ALCOHOL; MONOHYDROXY; SATURATED CHAIN; SINGLE

STRUCTURE TYPE; USE
LT MEASURING; SIMULTANEOUS
LT ANALYZER; INSTRUMENT; PORTABILITY
ATM Template not available

L5 ANSWER 12 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 95:1310 APILIT;APILIT2
DN 4201055
TI APC/RIS [(advanced process control/refinery information systems)]
AU Latour P R
CS SETPOINT Inc
SO Fuel Reformulation V2 N.2 14-23 (March-April 1992) ISSN: 1062-3744
DT Journal
LA English
AB APC/RIS [(advanced process control/refinery information systems)] will greatly assist the refineries in accomplishing the difficult reformulated **fuels** challenges they face for the rest of the 1990's and beyond. The refinery system is inherently multivariable, interacting, and nonlinear. The quality and availability of each component must be economically matched between the blender consumers of components and the process unit suppliers of components. Hints are given on how to solve these problems while maintaining ever tighter constraints on product quality (benzene, aromatics, sulfur, **T(sub)5**
(sub)0 and T(sub)9(sub)0 points, olefins, oxygenates (MTBE, TAME), etc.), and optimizing profit margins, using advanced computers and software. Tables, diagram, and 21 references.
CC CATALYTIC CONVERSIONS; CHEMICAL PRODUCTS; FUEL REFORMULATION; MOTOR FUELS; OXYGEN COMPOUNDS; PETROLEUM PROCESSES; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; PROCESS CONTROL & INSTRUMENT.
CT 1634-04-4; 71-43-2; 994-05-8; ADDITIVE; AROMATIC; AROMATIC HYDROCARBON; BENZENE; BENZENE CONTENT; BENZENE RING; BLENDING; BRANCHED CHAIN; BUSINESS OPERATION; C5; C6; COMPOSITION; COMPOUNDS; COMPUTER PROGRAMING; COMPUTING; CONSUMER; COST; COST ANALYSIS; DEGREE OF UNSATURATION; ECONOMIC ANALYSIS; ECONOMIC FACTOR; ETHER; ETHER CONTENT; ***GASOLINE** STOCK; HYDROCARBON; INCOME; INDUSTRIAL PLANT; *INFORMATION SERVICE; MARKETING; MIXING; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MTBE CONTENT; OCTANE BOOSTER; OIL REFINERY; OLEFIN; OPERATIONS RESEARCH; OPTIMIZATION; OXYGENATE CONTENT; *PROCESS CONTROL; PRODUCT QUALITY; PROFIT; PROGRAMING; *REFORMULATED **GASOLINE**; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SULFUR CONTENT; SUPPLY; TERT-AMYL METHYL ETHER; TERT-BUTYL METHYL ETHER; UNSATURATED; *USE
LT 71-43-2; BENZENE; BENZENE RING; C6; HYDROCARBON; SINGLE STRUCTURE TYPE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
LT 1634-04-4; 994-05-8; ADDITIVE; BRANCHED CHAIN; C5; C6; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-AMYL METHYL ETHER; TERT-BUTYL METHYL ETHER; USE
ATM Template not available

L5 ANSWER 13 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 94:6918 APILIT;APILIT2
DN 4103171
TI Hot-start driveability of low T50 [(50% distillation temperature)] **fuels**
AU Jorgensen S W; Reuter R M
CS GM; Texaco Inc
SO SAE Fuels & Lubricants Meeting (Philadelphia 10/18-21/93) SAE Meeting Paper N.932672 (1993) 14P ISSN: 0148-7191
DT Conference
LA English
AB Hot-start driveability of low **T(sub)5(**
sub)0 [(50% distillation temperature)] **fuels.**
The effects of Rvp, **T(sub)5(sub)**
0, and oxygenates on hotstart and drivability performance of vehicles operated at high and low altitude in high and intermediate

ambient temperatures were studied in July and August 1992.
Temperature-range means were 21.degree. and 29.degree.C at high altitude
and 37.degree.C at low altitude. Twenty 1983-92 model-year vehicles were
tested on a set of 18 **fuels** including 6 hydrocarbon, 6
gasoline-ethanol, and 6 **gasoline**-MTBE blends.
Fuel-injected vehicles had very few demerits and were insensitive,
in most cases, to the **fuel** variables studied, while carbureted
vehicle demerit levels were three times the level associated with
fuel injected vehicles. There was significant degradation of
drivability in these vehicles tested on low **T(sub)**
5(sub)0 and low Rvp **fuels**.
Drivability problems related to low **T(sub)5(**
sub)0 fuels were frequently symptomatic of
vapor lock. In carbureted vehicles using high-Rvp **fuel** at high
altitudes, **gasoline**-oxygenate blends had much improved
drivability relative to pure hydrocarbon **fuels**. The effect of
ambient temperature was greater than that of any other variable. Tables
and graphs.

CC CHEMICAL PRODUCTS; FUEL REFORMULATION; MOTOR FUELS; OXYGEN COMPOUNDS;
PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 1634-04-4; 64-17-5; ADDITIVE; ALTITUDE; ASSOCIATION; BOILING POINT;
BRANCHED CHAIN; C2; C5; CARBURETION; COMPOSITION; DISTILLATION RANGE;
*DRIVEABILITY; *ENGINE PERFORMANCE; ENGINE STARTING; ENGINE TEST; ETHER;
ETHYL ALCOHOL; **FUEL** INJECTION; ***FUEL** PERFORMANCE;
***GASOHOL; GASOLINE** STOCK; HIGH TEMPERATURE; INJECTION;
MATERIALS TESTING; MEETING PAPER; MIXTURE; MONOHYDROXY; *MOTOR
FUEL; *MOTOR **GASOLINE**; MOTOR VEHICLE; OCTANE BOOSTER;
OPERATING CONDITION; OXYGENATE CONTENT; PHYSICAL PROPERTY; *REFORMULATED
GASOLINE; REID VAPOR PRESSURE; SAE; SATURATED CHAIN; SEASONAL;
SINGLE STRUCTURE TYPE; SUMMER; TEMPERATURE; TEMPERATURE 20 TO 40 C;
TERT-BUTYL METHYL ETHER; TEXACO; THERMODYNAMIC PROPERTY; TRANSITION
TEMPERATURE; *USE; VAPOR LOCK; VAPOR PRESSURE

LT ENGINE PERFORMANCE; ENGINE STARTING; SEASONAL; SUMMER

LT ALTITUDE; MOTOR VEHICLE

LT 64-17-5; C2; ETHYL ALCOHOL; MONOHYDROXY; MOTOR FUEL; SATURATED CHAIN;
SINGLE STRUCTURE TYPE; USE

LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED
CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE

ATM Template not available

L5 ANSWER 14 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 94:2658 APILIT;APILIT2

DN 4101539

TI Chromatographic determination of some performance characteristics of
diesel **fuels**

AU Leont'eva S A; Alymova T E; Krasnova I N

CS Russian Scientific Research Institute of Petroleum Industry

SO Khimiya i Tekhnologiya Topliv i Masel N.11 28-29 (1993) ISSN: 0023-1169

DT Journal

LA Russian

AB Chromatographic determination of some performance characteristics of
diesel **fuels**. HPLC and capillary-column chromatography were
used to determine the concentrations of n-alkanes and aromatics,
respectively, in 30 diesel **fuels**, including both straight-run
gas oil fractions and commercial **fuels** with different
amounts of light cracked **gas** oils. The **fuels**
contained .approx. 13-19, 26-28, and 0-1.5 wt % mono-, bi-, and polycyclic
aromatics, respectively, 6-18% n-paraffins, and 42-68% isoparaffins plus
naphthenes, and had cetane number values of 36-45 and the 50% distillation
temperature (**T(sub)5(sub)0**
) from 199.degree. to 302.degree.C. The specific **fuel**
consumption (SFC), cylinder pressure increase rate (.DELTA.P), and the
Hartridge smoke index (HI) of engine exhaust were measured in a commercial
diesel engine. Regression analysis of the data produced correlation
equations, expressing cetane number, FC, .DELTA.P, and HI as a function of

fuel composition and **T**(**sub**)**5**(
sub)**0**. Applied to a reference set of 10 **fuels**,
the equations predicted the **fuels'** performance characteristics
with good accuracy. The concentrations of bicyclic aromatics and
n-paraffins and the **T**(**sub**)**5**(**sub**)
0 distillation point had the major effect on the **fuels'**
engine performance. Table and 12 references. (in Russian)

CC ANALYSES AND TESTS; DATA CORRELATION & PREDICTION; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT AIR POLLUTANT; *ANALYTICAL METHOD; AROMATIC; AROMATIC HYDROCARBON; BENZENE RING; BOILING POINT; BRANCHED ALKANE; BRANCHED CHAIN; CAPILLARY TUBE; *CETANE NUMBER; *CHROMATOGRAPHY; COLUMN; COMPOSITION; COMPOUNDS; COMPRESSION IGNITION ENGINE; CONCENTRATION; *DATA CORRELATION; DIESEL ENGINE; *DIESEL **FUEL**; DISTILLATION; DISTILLATION RANGE; ENGINE; ENGINE CYLINDER; ENGINE OPERATING CONDITION; ENGINE PERFORMANCE; EQUATION; EXHAUST **GAS**; **FUEL** CONSUMPTION; ***FUEL** PERFORMANCE; **GAS** OIL; HIGH PRESSURE; HYDROCARBON; INTERNAL COMBUSTION ENGINE; *LIQUID CHROMATOGRAPHY; MATHEMATICS; MEASURING; *MOTOR **FUEL**; NAPHTHENES; NORMAL ALKANE; OPERATING CONDITION; PARAFFINIC; PETROLEUM DISTILLATE; PETROLEUM FRACTION; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTANT; PRESSURE; REGRESSION ANALYSIS; SATURATED CARBOCYCLIC; SATURATED CHAIN; SINGLE STRUCTURE TYPE; *SMOKE POINT; STATISTICAL ANALYSIS; STRAIGHT CHAIN; STRAIGHT RUN PRODUCT; TEMPERATURE; TEMPERATURE 300 TO 600 C; TRANSITION TEMPERATURE; TUBE; UNKNOWN CARBON COUNT; *USE; WASTE **GAS**; WASTE MATERIAL

LT HYDROCARBON; NORMAL ALKANE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; UNKNOWN CARBON COUNT

LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON

LT BRANCHED ALKANE; BRANCHED CHAIN; HYDROCARBON; SATURATED CHAIN; SINGLE STRUCTURE TYPE; UNKNOWN CARBON COUNT

LT COMPOUNDS; HYDROCARBON; NAPHTHENES; SATURATED CARBOCYCLIC

ATM Template not available

L5 ANSWER 15 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 93:9366 APILIT;APILIT2

DN 4004492

TI CRC pilot program to investigate the effect on driveability of intake valve deposits and variations in **fuel** volatility

SO CRC Report N.579 (June 1993) 57P ISSN: 0096-6576

DT Report

LA English

AB CRC pilot program to investigate the effect on driveability of intake valve deposits and variations in **fuel** volatility. A pilot program was conducted by the CRC Volatility Group at the Southwest Research Institute during late 1991 and early 1992, to study the relationship between intake valve deposits and cold-start and warmup driveability. Eight vehicles were tested using three **fuels** with varying levels of **T**(**sub**)**5**(**sub**)
0 (50% distillation temperature). Duplicate ratings were made using both the BMW Driveability Test Procedure and a modification of the CRC Cold-Start and Warmup Driveability Procedure. None of the three candidate engines were as good as the BMW 318i reference engine in discriminating valve deposit effects on driveability. Graphs and tables.

CC MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT BOILING POINT; COMMERCIAL; COMPOSITION; CONCENTRATION; DISTILLATION RANGE; DRIVEABILITY; ENGINE PERFORMANCE; ENGINE STARTING; *ENGINE TEST; INTAKE VALVE; LOW TEMPERATURE; *MATERIALS TESTING; MODIFICATION; *MOTOR **FUEL**; MOTOR VEHICLE; OPERATING CONDITION; PHYSICAL PROPERTY; PILOT SCALE; REPORT; TEMPERATURE; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *USE; VALVE; VAPOR PRESSURE; WARMUP; WASTE DEPOSIT; WASTE MATERIAL

ATM Template not available

L5 ANSWER 16 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 93:9109 APILIT;APILIT2

DN 4004235
TI Effects of Rvp, T50, and oxygenates on hot-start and driveability performance at high and low altitude
SO CRC Report N.584 (May 1993) 70P ISSN: 0096-6576
DT Report
LA English
AB Effects of Rvp, **T(sub)5(sub)**
0, and oxygenates on hot-start and driveability performance at high and low altitude. A two-phase test program, designed to investigate the effects of Rvp, **T(sub)5(sub)**
0, and oxygenates on hot-start and drivability performance of vehicles operated at high/low altitude in high and intermediate ambient temperatures, was conducted in July/August 1992 in Longmont, CO, and Phoenix, AR. The temperatures had means of 70.degree.F and 84.degree.F in Longmont, and 99.degree.F in Phoenix. Twenty 1983-92 model-year vehicles were tested on a set of 18 **fuels** including six hydrocarbon-only **fuels**, six **gasoline**-ethanol and six **gasoline**
-MTBE blends. **Fuel**-injected vehicles produced only 33% of the demerits of the carburetted vehicles, and were insensitive, in most cases, to **T(sub)5(sub)0** and the
other **fuel** variables studied. For carburetted vehicles, decreasing **T(sub)5(sub)0**
had no effect with high-Rvp **fuels**, but reduced **T(**
sub)5(sub)0 fuels degraded
drivabillity with low-Rvp **fuels**. In carburetted vehicles, **gasoline**-oxygenate blends showed generally improved drivability at high altitude with high-Rvp **fuels**. An alternative drivability procedure the emphasized stop-and-go driving showed no significant **fuel** effects. Tables, graphs, diagram, and map.
CC CHEMICAL PRODUCTS; MOTOR FUELS; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 1634-04-4; 64-17-5; *ADDITIVE; ALTITUDE; ARKANSAS; BRANCHED CHAIN; C2; C5; CARBURETION; COLORADO; DISTRICT 3; DISTRICT 4; *DRIVEABILITY; *ENGINE PERFORMANCE; ETHER; ETHYL ALCOHOL; **FUEL** INJECTION;
***GASOHOL**; HIGH TEMPERATURE; INJECTION; MAP; MIXTURE; MONOHYDROXY; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE;
MULTIPHASE; NORTH AMERICA; *OCTANE BOOSTER; OPERATING CONDITION; *PHYSICAL PROPERTY; *REID VAPOR PRESSURE; REPORT; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TEMPERATURE; TEMPERATURE 20 TO 40 C; TERT-BUTYL METHYL ETHER; *THERMODYNAMIC PROPERTY; USA; *USE; *VAPOR PRESSURE
LT ALTITUDE; DRIVEABILITY; ENGINE PERFORMANCE
LT 64-17-5; ADDITIVE; C2; ETHYL ALCOHOL; MONOHYDROXY; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; USE
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
ATM Template not available

L5 ANSWER 17 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:13771 APILIT;APILIT2
DN 3932899
TI Laboratory evaluation of an oxidation catalytic converter at various simulated altitudes
AU Culshaw J R; McClure B T
CS USBM
SO SAE International Off-Highway & Powerplant Congress (Milwaukee 9/14-17/92) SAE Special Publication N.SP-931 183-90 (September 1992)
DT Conference
LA English
AB Laboratory evaluation of an oxidation catalytic converter at various simulated altitudes. The efficiency of Engelhard Corp's PTX Ultra 10-DVC oxidation catalytic converter (OCC) for removing CO and hydrocarbons was measured by flame ionization detection (FID-HC) from diesel engine exhaust for simulated altitudes from 0.61 km (2000 ft) to 2.74 km (9000 ft) above sea level. Altitudes were simulated by controlling the pressures at the intake and exhaust manifolds. Tests were conducted at a constant engine

speed over a **fuel**/air ratio from 0.01:1 to 0.05:1 by changing the load on the engine, thus varying the exhaust temperature. The lightoff temperature, **T(sub)5(sub)**
0,' of the OCC increased systematically with simulated altitude for both CO and FID-HC. For FID-HC, **T(sub)5(**
sub)0 started at 260.degree.C at 0.61 km below sea level and reached 309.degree.C at 2.74 km above. For CO, **T(**
sub)5(sub)0 started at 230.degree.C
and increased to 292.degree.C. The maximum removal efficiency also changed systematically with altitude but for CO and FID-HC, the direction of change was reversed. For FID-HC, the maximum efficiency decreased with increasing altitude, and for CO, it increased. Flow diagrams, table, graphs, and 18 references.

CC AIR POLLUTION CONTROL; CATALYSTS & CATALYSIS; HEALTH & ENVIRONMENT; POLLUTION-CONTROL CATALYSTS

CT 12795-06-1; 630-08-0; AIR **FUEL** RATIO; AIR POLLUTANT; ALTITUDE; ASSOCIATION; CARBON; CARBON MONOXIDE; CARBON OXIDE; *CATALYST; *CATALYTIC MUFFLER; COMMERCIAL; COMPOUNDS; COMPRESSION IGNITION ENGINE; DETECTOR; DIESEL ENGINE; EFFICIENCY; ENGINE; ENGINE LOAD; ENGINE OPERATING CONDITION; *EQUIPMENT TESTING; EXHAUST **GAS**; EXHAUST MANIFOLD; FLAME IONIZATION DETECTOR; GROUP IVA; GROUP VIA; HYDROCARBON; IDE; INSTRUMENT; INTAKE MANIFOLD; INTERNAL COMBUSTION ENGINE; IONIZATION; IONIZATION DETECTOR; MANIFOLD; MATERIALS TESTING; MEETING PAPER; *MUFFLER; OPERATING CONDITION; OXIDATION REACTION; OXYGEN; POLLUTANT; *POLLUTION CONTROL EQUIPMENT; PRESSURE; SAE; TEMPERATURE; TEMPERATURE 200 TO 300 C; TEMPERATURE 300 TO 600 C; UNBURNED HYDROCARBON; US BUREAU OF MINES; *USE; VELOCITY; WASTE **GAS**; WASTE MATERIAL

LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT ALTITUDE; CATALYTIC MUFFLER; MUFFLER; POLLUTION CONTROL EQUIPMENT

ATM Template not available

L5 ANSWER 18 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 92:7805 APILIT;APILIT2

DN 3903660

TI Motor **gasolines**
Ottokraftstoffe

AU Ecker A

CS OMV

SO Erdoel Erdgas Kohle V108 N.3 123-24 (March 1992) ISSN: 0179-3187

DT Journal

LA German

AB Motor **gasolines**. A report on Session 15, entitled "
Fuels...Gasoline", of the 13th World Petroleum Congress (Buenos Aires 10/20-25/91), covers the vaporizability of **gasolines**
, the future octane number of **gasoline** pools, methanol as a **fuel**, **gasoline** composition and emissions, and reformulated **gasoline**; other subjects such as cold start motor behavior, and correlation between the distillation temperature expressed as 50% distilling over a given temperature, **T(sub)**
5(sub)0, and cold start behavior; and methanol addition to **gasoline** to make methanol-**gasoline** blends M5, M10, and M15, and their effect on cold start. Table and graph. (in German)

CC MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 67-56-1; ADDITIVE; AIR POLLUTANT; BOILING POINT; C1; COMPOSITION; DISTILLATION RANGE; ECONOMIC FACTOR; ENGINE PERFORMANCE; ENGINE STARTING; EXHAUST **GAS**; **FUEL** PERFORMANCE; ***GASOHOL**;
GASOLINE POOL; LOW TEMPERATURE; METHANOL; MIXTURE; MONOHYDROXY; *MOTOR **FUEL**; *MOTOR **GASOLINE**; OCTANE BOOSTER; OCTANE NUMBER; OMV; OPERATING CONDITION; PHASE CHANGE; PHYSICAL PROPERTY; POLLUTANT; *REFORMULATED **GASOLINE**; REPORT; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TEMPERATURE; TRANSITION TEMPERATURE; *USE;

VAPORIZATION; WASTE **GAS**; WASTE MATERIAL
LT 67-56-1; ADDITIVE; C1; METHANOL; MONOHYDROXY; MOTOR FUEL; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; USE
ATM Template not available

L5 ANSWER 19 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:7679 APILIT;APILIT2
DN 3903534
TI Effect of volatility and oxygenates on driveability at intermediate ambient temperatures
SO CRC Report N.CRC-578 (March 1992) 137P ISSN: 0096-6576
DT Report
LA English
AB Effect of volatility and oxygenates on driveability at intermediate ambient temperatures. The 1989 CRC driveability program studied the independent effects of front-end volatility and mid-range volatility on cold-start and warmup driveability of late model vehicles at intermediate ambient temperatures. Front-end volatility was measured by Rvp, and mid-range volatility was measured by the temperature at which 50% of the **fuel** is evaporated (**T**(**sub**)**5**(**sub**)**0**). Volatility ranges studied were those that may be required of future summertime **fuels**. Classical volatility levels were included for comparison. The study included both hydrocarbon and **gasoline**-oxygenate blends. Of the 24 vehicles tested (1988 and 1989 model-year), eight were port-**fuel**-injected (PFI), eight throttle-body-injected (TBI) and eight carbureted. Carbureted and TBI cars performed at a similar driveability level with a similar response to **fuel** type and volatility. PFI cars had much better driveability than the others, showed little or no response to changes in front-end volatility, and had some degradation in driveability at high **T**(**sub**)**5**(**sub**)**0** levels. Tables, diagrams, and graphs.
CC CHEMICAL PRODUCTS; MOTOR FUELS; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT *ADDITIVE; CARBURETION; CARBURETOR; COMPARISON; COMPOUNDS; DETERIORATION; *DRIVEABILITY; *ENGINE PERFORMANCE; *ENGINE STARTING; EVAPORATION LOSS; **FUEL** INJECTION; HYDROCARBON; INJECTION; INTAKE VALVE; LOW TEMPERATURE; MEASURING; MIXTURE; MODEL; MOTOR **FUEL**; MOTOR **GASOLINE**; MOTOR VEHICLE; *OCTANE BOOSTER; OPERATING CONDITION; OXYGEN ORGANIC; *PHYSICAL PROPERTY; *REID VAPOR PRESSURE; REPORT; SEASONAL; SUMMER; TEMPERATURE; *THERMODYNAMIC PROPERTY; *USE; VALVE; *VAPOR PRESSURE; WARMUP
LT ADDITIVE; COMPOUNDS; OCTANE BOOSTER; OXYGEN ORGANIC; USE
LT MODEL; MOTOR VEHICLE
LT MOTOR FUEL; MOTOR GASOLINE; SEASONAL; SUMMER; USE
LT COMPOUNDS; HYDROCARBON
ATM Template not available

L5 ANSWER 20 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:5382 APILIT;APILIT2
DN 3902541
TI Analyzing the influence of **gasoline** characteristics on transient engine performance
AU Kanehara K; Nakada M; Ogawa T; Sasajima N; Kayanuma N
CS Nippon Soken Inc; Toyota Motor Corp; Toyota Central R&D Laboratories Inc
SO SAE International Fuels and Lubricants Meeting (Toronto 10/7-10/91) Paper N.912392 14P ISSN: 0148-7191
DT Conference
LA English
AB Analyzing the influence of **gasoline** characteristics on transient engine performance. Exhaust emissions of hydrocarbons (HC), CO, and NO(sub)x were measured using the Federal Test Procedure on four 1990 model year passenger cars (accumulated 4000-50,000 mi), equipped with various **fuel** management systems and exhaust **gas** treatment systems, and burning eight different test **gasolines**. The

fuels had RON and MON values of 97.1-99.5 and 87.1-88.3, respectively, and differed primarily in the Rvp (.approx. 55-70 kPa), the 50% distillation temperature (**T(sub)5(**
sub)0; 87.degree.-110.degree.C), and MTBE (0, 7, or 15 vol %), aromatics (17-32.5%), and olefin (.approx. 4.5-16%) contents. Lowering the **gasoline T(sub)5(**
sub)0 led to a 20% HC emissions decrease. A higher MTBE content increased HC emissions and lowered CO emissions. Both high **T(sub)5(sub)0** and MTBE
blending impaired vehicle drivability during acceleration. Engine dynamometer studies showed that high **T(sub)5**
(sub)0 causes **gasoline**'s poor vaporization.
The increased amount of liquid **fuel** remaining in the intake manifold results in increased HC emissions and poor engine drivability during warmup. Enrichment of the vaporized **fuel** in the low-heating-value MTBE causes poor warmup performance of the engine. Diagrams, tables, and graphs.

CC AIR POLLUTION CONTROL; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 11104-93-1; 12795-06-1; 1634-04-4; 630-08-0; ACCELERATION; ADDITIVE; *AIR POLLUTANT; AROMATIC HYDROCARBON; ASSOCIATION; AUTOMOBILE; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE ENGINE; *AUTOMOTIVE EXHAUST **GAS**; BENZENE RING; BLENDING; BOILING POINT; BRANCHED CHAIN; C5; CARBON; CARBON MONOXIDE; CARBON OXIDE; COMPOSITION; COMPOUNDS; CONCENTRATION; DISTILLATION RANGE; *DRIVEABILITY; DYNAMOMETER; ENGINE; *ENGINE PERFORMANCE; ENGINE TEST; EQUIPMENT TESTING; ETHER; ETHER CONTENT; *EXHAUST **GAS**; **FUEL** PERFORMANCE; GROUP IVA; GROUP VA; GROUP VIA; HEAT OF COMBUSTION; HEAT OF REACTION; HYDROCARBON; IDE; INSTRUMENT; INTAKE MANIFOLD; LOW BTU; MANIFOLD; MATERIALS TESTING; MEASURING; MEETING PAPER; MIXING; MODEL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR OCTANE; MOTOR VEHICLE; NATIONAL; NITROGEN; NITROGEN OXIDE; OCTANE BOOSTER; OCTANE NUMBER; OLEFIN; OPERATING CONDITION; OXYGEN; PHASE CHANGE; PHYSICAL PROPERTY; *POLLUTANT; *POLLUTION CONTROL; REID VAPOR PRESSURE; RESEARCH OCTANE; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TEMPERATURE; TEMPERATURE 80 TO 125 C; TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON; UNSATURATED; UNSTEADY STATE; *USE; VAPOR PRESSURE; VAPORIZATION; VELOCITY; WARMUP; *WASTE **GAS**; *WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT AUTOMOBILE; MODEL; MOTOR VEHICLE

LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE

LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON

LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED

ATM Template not available

L5 ANSWER 21 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 91:13631 APILIT;APILIT2

DN 3807841

TI The effects of **gasoline** volatility on the driveability of passenger cars

AU Yoshida E; Nomura H; Nagasawa T; Omata T

CS Nippon Oil Co Ltd

SO 13th World Petroleum Congress (Buenos Aires 1991) Preprint N.15.1 7P
ISSN: 0084-2176

DT Conference

LA English

AB The effects of **gasoline** volatility on the driveability of passenger cars were investigated in chassis dynamometer tests. Hot weather drivability was evaluated as a function of **gasoline**

volatility (45-110 Rvp), 86.degree.-150.degree.C distillation temperature **(T(sub)5(sub)0)**,
fuel temperature (-10.degree. to +40.degree.C), type of the
fuel supply system (carburetor, multipoint injection, or
single-point injection), and **fuel** supply system pressure
(200-600 kPa for multipoint injection cars). The drivability malfunctions included poor restarting after hot soak and (in carburetor cars) poor acceleration after restarting. The drivability was correlated with a Hot Weather Driveability Index (HDI), a linear combination of RVP and **gasoline** distillation percentage at **fuel** temperature and pressure. The same correlation was also valid with 5 vol % methanol/ **gasoline fuels**. Intermediate- and cold-weather drivability, tested at 20.degree.-25.degree. or 0.degree.C, respectively, depended primarily on **T(sub)5(sub)**
0 of the **fuel**. With 5-15% methanol/**gasoline**
blends, the drivability significantly deteriorated. The ways to improve drivability are suggested. Tables, graphs, and 14 references.

CC MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 67-56-1; ACCELERATION; ADDITIVE; AUTOMOBILE; BOILING POINT; C1; CARBURETOR; CHASSIS; COMPOSITION; CONCENTRATION; DISTILLATION RANGE; DRIVEABILITY; DYNAMOMETER; ENGINE PERFORMANCE; ENGINE STARTING; **FUEL** INJECTION; **FUEL** SYSTEM; ***GASOHOL**; HIGH TEMPERATURE; INJECTION; INSTRUMENT; LOW TEMPERATURE; MALFUNCTION; MEETING PAPER; METEOROLOGICAL PHENOMENON; METHANOL; MIXTURE; MONOHYDROXY; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; NIPPON OIL; OPERATING CONDITION; PHYSICAL PROPERTY; PRESSURE; REID VAPOR PRESSURE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TEMPERATURE; TEMPERATURE -10 TO 20 C; TEMPERATURE 20 TO 40 C; TEMPERATURE 40 TO 80 C; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *USE; VAPOR PRESSURE; VELOCITY

LT 67-56-1; ADDITIVE; C1; METHANOL; MONOHYDROXY; MOTOR FUEL; SATURATED CHAIN; SINGLE STRUCTURE TYPE; USE

ATM Template not available

L5 ANSWER 22 OF 25 APILIT

AN 89:5476 APILIT;APILIT2

DN 3602295

TI Use of an axial-dispersion model for a kinetic description of hydrocracking

AU Krishna R; Saxena A K

CS Indian Inst. Pet.

SO Chem. Eng. Sci. V44 N.3 703-12 (1989) ISSN: 0009-2509

LA English

AB Use of an axial-dispersion model for a kinetic description of hydrocracking. A new approach to the kinetic description of the hydrocracking of vacuum **gas** oils (VGO) considers the hydrocracking as an alteration in the molecular weight distribution. The latter is related to the distribution of boiling points around the mid-boiling temperature **T(sub)5(sub**
)0, which is described by an axial dispersion model. The model has three parameters, i.e., Peclet number (Pe) and the order, N, and rate constant, K(sub)5(sub)0, of the **T(sub)5(**
sub)0 decay. In predicting published yield data for the catalytic hydrocracking of a Kuwait VGO, this model was almost as accurate as a detailed kinetic model (60 parameters) based on a reaction network between the lumped species of paraffins, naphthenes, aromatics, and sulfur compounds. Model application to the hydrocracking of Libyan and Iranian Light VGO showed that all three parameters of the dispersion model are primarily determined by the paraffin content of the feedstock. Pe reflects the selectivity of the catalyst for a given feedstock and given operating conditions, whereas N and K(sub)5(sub)0 together reflect the activity of the catalyst for a given feedstock. The same approach should be applicable to modeling catalytic cracking kinetics. Diagram, table, and graphs.

CC HYDROGENATION; PETROLEUM PROCESSES; PETROLEUM REFINING AND PETROCHEM

CT ACTIVITY; AFRICA; ALKANE-A; AROMATIC HYDROCARBON-A; BENZENE RING-A;

BOILING POINT; CATALYST; CATALYST ACTIVITY; CATALYTIC CRACKING; COMPOSITION; COMPOUNDS-A; DISTRIBUTION; FEEDSTOCK; ***GAS** OIL-*A; HYDROCARBON-A; *HYDROCRACKING; IRAN; *KINETICS; KUWAIT; LIBYA; MATHEMATICAL MODEL; MIDDLE EAST; MIXING; MODEL; MOLECULAR WEIGHT; NAPHTHENES-A; OPERATING CONDITION; PARAFFINIC; PECLET NUMBER; PHYSICAL PROPERTY; SATURATED CARBOCYCLIC-A; SATURATED CHAIN-A; SELECTIVITY; SINGLE STRUCTURE TYPE-A; SULFUR CONTENT; TEMPERATURE; TRANSITION TEMPERATURE; USE; *VACUUM **GAS** OIL-*A; YIELD

LT HYDROCRACKING; KINETICS; MATHEMATICAL MODEL; MIXING; MODEL

LT ALKANE-A; COMPOUNDS-A; HYDROCARBON-A; SATURATED CHAIN-A; SINGLE STRUCTURE TYPE-A

LT COMPOUNDS-A; HYDROCARBON-A; NAPHTHENES-A; SATURATED CARBOCYCLIC-A

LT AROMATIC HYDROCARBON-A; BENZENE RING-A; COMPOUNDS-A; HYDROCARBON-A

L5 ANSWER 23 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 84:9893 APILIT;APILIT2

DN 3132675

TI SULFUR-POISONING OF THE OXIDATION OF H2 AND CO OVER A (PD + CEO2)/(GAMMA)-AL2O3 CATALYST

AU SU E C; WATKINS W L H; GANDHI H S

CS FORD MOT. CO.

SO APPL. CATAL. V12 N.1 59-68 (9/14/84) ISSN: 0166-9834

LA English

AB Sulfur-Poisoning of the Oxidation of H(sub)2 and CO over a (Pd + CeO(sub)2)/.gamma.-Al(sub)2O(sub)3 Catalyst, a potential automotive emission control catalyst, was investigated in a U-tube flow reactor with 1-2% total of H(sub)2, CO, and O(sub)2 in He. SO(sub)2 at 20 ppm depressed catalyst activity as measured by the temperature (**T(sub)5(sub)0**) required for 50% conversion to varying degrees. In H(sub)2 oxidation, SO(sub)2 increased **T(sub)5(sub)0** from 75.degree.-114.degree.C to 303.degree.-445.degree.C; **T(sub)5(sub)0** also increased with increase in the H(sub)2/O(sub)2 ratio; the over-all reaction was negative order with respect to H(sub)2, and second order in O(sub)2; and CO markedly inhibited H(sub)2 oxidation. In CO oxidation, the over-all reaction was one-half order in both CO and O(sub)2; SO(sub)2 increased **T(sub)5(sub)0** from 307.degree.C to 337.degree.C in the absence of H(sub)2 or from 315.degree. to 368.degree.C at 3:1 CO/H(sub)2 ratio; H(sub)2 was not a poison for CO oxidation in the absence of SO(sub)2. Sulfur poisoning was reversible, and depended on dynamic equilibrium among several competing surface reactions. The catalyst was prepared by slurrying PdCl(sub)2 in 1%nitric acid with CeO(sub)2 and .gamma.-alumina, followed by calcination at 800.degree.C; contained 2.01% Pd and 17.9% Ce; and had a 67 sq m/g BET surface area. Graphs, tables, and 15 references.

CC AIR AND WATER CONSERVATION; AIR POLLUTION CONTROL

CT 12624-32-7; 12795-06-1-A; 1344-28-1-AP; 630-08-0-A; 7446-09-5; 7647-10-1-A; 7697-37-2; ACTIVATION; ACTIVITY; AIR POLLUTANT; ALUMINUM-AP; ALUMINUM OXIDE-AP; ATE; *AUTOMOTIVE EMISSION CONTROL; CALCINING; CARBON-A; CARBON MONOXIDE-A; CARBON OXIDE-A; *CATALYST-*P; CATALYST ACTIVITY; CATALYST POISON; CATALYST POISONING; CATALYST PREPARATION; CERIUM-AP; CHLORINE-A; COMPOSITION; COMPOUNDS-P; CONCENTRATION; CRYSTAL; ELEMENT-NA; EQUILIBRIUM; FLOW REACTOR; GROUP IIIA-AP; GROUP IIIB-AP; GROUP IVA-A; GROUP VA; GROUP VIA-NAP; GROUP VIIA-A; GROUP VIII-AP; HELIUM; HYDROGEN-NA; HYDROGEN CONTENT; IDE-NAP; INHIBITION; INORGANIC SOLVENT; KINETICS; MATERIALS TESTING; NITRIC ACID; NITROGEN; NOBLE **GAS**; OPERATING CONDITION; *OXIDATION REACTION; OXYGEN-NAP; OXYGEN CONTENT; PALLADIUM-AP; PALLADIUM CHLORIDE-A; PHYSICAL PROPERTY; PLATINUM METALS-AP; *POLLUTION CONTROL; RARE EARTH-AP; REACTION MECHANISM; REACTOR; REVERSIBILITY; SLURRY; SOLVENT; SPECIFIC SURFACE; SULFUR; SULFUR CONTENT; SULFUR DIOXIDE; SULFUR OXIDE; SUSPENSION; TEMPERATURE; TEMPERATURE 300 TO 600 C; TEMPERATURE 40 TO 80 C; TEMPERATURE 600 C AND HIGHER; TEMPERATURE 80 TO 125 C; *USE-N*P

LT ELEMENT-A; HYDROGEN-A

LT 12624-32-7; 7446-09-5; AIR POLLUTANT; CATALYST POISON; GROUP VIA; IDE; OXYGEN; SULFUR; SULFUR DIOXIDE; SULFUR OXIDE; USE
LT 12795-06-1-A; 630-08-0-A; CARBON-A; CARBON MONOXIDE-A; CARBON OXIDE-A; GROUP IVA-A; GROUP VIA-A; IDE-A; OXYGEN-A
LT 1344-28-1-P; ALUMINUM-P; ALUMINUM OXIDE-P; CATALYST-P; CERIUM-P; COMPOUNDS-P; CRYSTAL; GROUP IIIA-P; GROUP IIIB-P; GROUP VIA-P; GROUP VIII-P; IDE-P; OXYGEN-P; PALLADIUM-P; PLATINUM METALS-P; RARE EARTH-P; USE-P
LT 1344-28-1-A; ALUMINUM-A; ALUMINUM OXIDE-A; CRYSTAL; GROUP IIIA-A; GROUP VIA-A; IDE-A; OXYGEN-A
LT 7647-10-1-A; CHLORINE-A; GROUP VIIA-A; GROUP VIII-A; IDE-A; PALLADIUM-A; PALLADIUM CHLORIDE-A; PLATINUM METALS-A
LT 7697-37-2; ATE; GROUP VA; GROUP VIA; HYDROGEN; INORGANIC SOLVENT; NITRIC ACID; NITROGEN; OXYGEN; SOLVENT; USE
LT CATALYST POISONING; REVERSIBILITY
LT CERIUM-A; GROUP IIIB-A; GROUP VIA-A; IDE-A; OXYGEN-A; RARE EARTH-A
LT ELEMENT; HELIUM; NOBLE GAS

L5 ANSWER 24 OF 25 APILIT COPYRIGHT 1999 ELSEVIER
AN 82:6890 APILIT;APILIT2
DN 2906664
TI POISONING OF COPPER AND CHROMIUM OXIDES AND COPPER-CHROMIUM SPINELS DURING CARBON MONOXIDE OXIDATION IN THE PRESENCE OF SULFUR OXIDES
AU SULTANOV M YU; ALTSHEL I S; MAKHMUDOVA Z Z; GANIEVA T F
CS AZERB. INST. PET. CHEM.
SO KINET. KATAL. V23 N.3 754-56 (MAY-JUNE 1982)
LA Russian
AB Poisoning of Copper and Chromium Oxides and Copper-Chromium Spinels during Carbon Monoxide Oxidation in the Presence of Sulfur Oxides was studied in an effort to develop low-temperature catalysts for CO oxidation in industrial **gaseous** effluents containing SO(sub)2, including automobile exhausts. In the absence of SO(sub)2, the catalytic activity of cupric oxide (CuO), characterized by the temperature corresponding to 50% CO conversion (**T**(**sub**)**5**(**sub**)**0**) and measured at 30,000/hr space velocity of a 1 vol % CO/air flow, was much higher than that of chromic oxide (Cr(sub)2O(sub)3), i.e., **T**(**sub**)**5**(**sub**)**0** of .approx. 250.degree. and 450.degree.C, respectively, and comparable with those of both cuprous and cupric spinels (Cu(sub)2Cr(sub)2O(sub)4 and CuCr(sub)2O(sub)4). Addition of 0.1 vol % SO(sub)2 poisoned CuO much stronger than the other catalysts, i.e., **T**(**sub**)**5**(**sub**)**0** was increased by .approx. 420.degree., 130.degree., 310.degree., and 310.degree.C for CuO, Cr(sub)2O(sub)3, Cu(sub)2Cr(sub)2O(sub)4, and CuCr(sub)2O(sub)4, respectively, so that in the presence of SO(sub)2, CuCr(sub)2O(sub)4 was the most active catalyst (**T**(**sub**)**5**(**sub**)**0** .approx. 520.degree.C) and CuO the least active (**T**(**sub**)**5**(**sub**)**0** .approx. 650.degree.C). The higher sulfur resistance of the spinels is due to the lower thermal stability of the inactive surface compounds formed by reactions with SO(sub)2, compared with those formed on Cr(sub)2O(sub)3 and particularly on CuO (cupric sulfate). Table and graphs. (in Russian)
CC AIR AND WATER CONSERVATION; AIR POLLUTION CONTROL; CHEMICALS-PROCESSING CATALYSTS; PETROLEUM REFINING AND PETROCHEM
CT 11118-57-3; 12624-32-7; 12795-06-1; 1308-38-9; 630-08-0; 7440-44-0; 7440-47-3; 7440-50-8; 7446-09-5; 7704-34-9; 7782-44-7; ACTIVITY; AIR; AIR POLLUTANT; AUTOMOBILE; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EXHAUST **GAS**; CARBON; CARBON MONOXIDE; CARBON OXIDE; CATALYSIS; *CATALYST; CATALYST ACTIVITY; CATALYST POISON; *CATALYST POISONING; CHROMIUM; CHROMIUM OXIDE; CHROMIUM OXIDE, CR2O3; COMMERCIAL; COPPER; CRYSTAL; ELEMENT; EXHAUST **GAS**; FLOW RATE; GROUP IB; GROUP IVA; GROUP VIA; GROUP VIB; IDE; INDUSTRIAL PROCESS; ITE; MOTOR VEHICLE; OPERATING CONDITION; *OXIDATION REACTION; OXYGEN; PHYSICAL PROPERTY; *POLLUTION CONTROL; SPACE VELOCITY; SPINEL STRUCTURE; STABILITY; STACK **GAS**; SULFUR; SULFUR DIOXIDE; SULFUR OXIDE; SURFACE; THERMAL PROPERTY

LT 12624-32-7; 7446-09-5; 7704-34-9; 7782-44-7; AIR POLLUTANT; CATALYST POISON; GROUP VIA; IDE; OXYGEN; SULFUR; SULFUR DIOXIDE; SULFUR OXIDE

LT 12795-06-1; 630-08-0; 7440-44-0; 7782-44-7; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN

LT 11118-57-3; 1308-38-9; 7440-47-3; 7440-50-8; 7782-44-7; CATALYST; CHROMIUM; CHROMIUM OXIDE; CHROMIUM OXIDE, CR2O3; COPPER; CRYSTAL; GROUP IB; GROUP VIA; GROUP VIB; IDE; ITE; OXYGEN; SPINEL STRUCTURE; SURFACE

LT 7782-44-7; ELEMENT; GROUP VIA; OXYGEN

L5 ANSWER 25 OF 25 APILIT COPYRIGHT 1999 ELSEVIER

AN 79:8048 APILIT;APILIT2

DN 2631445

TI A SIMPLIFIED DESCRIPTION OF ADSORPTION BREAKTHROUGH CURVES (OF ORGANIC VAPORS) IN AIR CLEANING AND SAMPLING DEVICES

AU GRUBNER O; BURGESS W A

CS HARV. SCH. PUBLIC HEALTH

SO AM. IND. HYG. ASSOC., J. V40 N.3 169-79 (MAR. 1979)

LA English

AB A Simplified Description of Adsorption Breakthrough Curves [of Organic Vapors] in Air Cleaning and Sampling Devices is obtained by the use of a simplified theory of statistical moments, which is shown to adequately describe the dependence of the characteristics of the breakthrough curve on vapor concentration, air velocity, charcoal particle size, and bed length. The breakthrough curve is shown, in the case of vinyl chloride, to be best represented by a normal probability distribution. A simplified means is given for calculating the breakthrough time of an arbitrary concentration, given two other known breakthrough times, and of calculating the adsorption capacity and **T(sub)** **5(sub)0** (i.e., the breakthrough time when the concentration is 50% of the input concentration). It is believed that the use of statistical moment theory will standardize measurements of the performance of respiratory protective devices and will lead to design improvements. Tables, graphs, and 15 references.

CC AIR AND WATER CONSERVATION; HEALTH; MEASUREMENT METHODS

CT 75-01-4; ACCURACY; ADSORBENT; *ADSORPTION; ADSORPTION PROCESS; AIR POLLUTANT; BED; CARCINOGEN; CHARCOAL; CHART; CHLOROETHYLENE; CHLOROHYDROCARBON; COMPOSITION; CONCENTRATION; C2; DESIGN; ENGINEERING; **GAS**; HALOHYDROCARBON; *HEALTH/DISEASE; LENGTH; MATHEMATICS; MONOOLEFINIC; *OCCUPATIONAL HEALTH; PARTICLE; PARTICLE SIZE; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTION CONTROL EQUIPMENT; PROBABILITY; RESPIRATORY SYSTEM; *SAFETY EQUIPMENT; *SAMPLING; SINGLE STRUCTURE TYPE; SORBENT; *SORPTION; SORPTION PROCESS; *STANDARDIZATION; STATISTICAL ANALYSIS; TERMINAL OLEFINIC; UNSATURATED CHAIN; VAPOR; VELOCITY; WASTE MATERIAL

LT ADSORBENT; CHARCOAL; PARTICLE; SORBENT

LT 75-01-4; AIR POLLUTANT; CARCINOGEN; CHLOROETHYLENE; CHLOROHYDROCARBON; C2; HALOHYDROCARBON; MONOOLEFINIC; SINGLE STRUCTURE TYPE; TERMINAL OLEFINIC; UNSATURATED CHAIN; WASTE MATERIAL

LT BED; LENGTH

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2             24 SEA FILE=APILIT ABB=ON  PLU=ON  T50
L4             25 SEA FILE=APILIT ABB=ON  PLU=ON  'T(SUB)5(SUB)0'
L5             25 SEA FILE=APILIT ABB=ON  PLU=ON  L4 AND (FUEL# OR GAS?)
L7            653 SEA FILE=APILIT ABB=ON  PLU=ON  AROMATIC# AND OLEFIN# AND
                  BENZENE# AND PARAFFIN#
L8             41 SEA FILE=APILIT ABB=ON  PLU=ON  L5 OR L2
L9              2 SEA FILE=APILIT ABB=ON  PLU=ON  L7 AND L8

=> d all 1-2 19
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M. Medley 09/226,409

L9 ANSWER 1 OF 2 APILIT COPYRIGHT 1999 ELSEVIER
AN 96:13768 APILIT;APILIT2
DN 4305433
TI The effects of sulfur on emissions from a S.I. [(spark ignition)] engine
AU Akimoto J; Kaneko T; Ichikawa T; Hamatani K; Omata T
CS Nippon Oil Co Ltd
SO SAE International Spring Fuels & Lubricants Meeting (Dearborn 5/6-8/96)
SAE Meeting Paper (1996) 10P (SAE Paper #961219) ISSN: 0148-7191
DT Conference
LA English
AB The effects of sulfur on emissions from a S.I. [(spark ignition)] engine. The effects of gasoline volatility (**T50** and T90), sulfur content, and hydrocarbon types on CO, NO(sub)x, total hydrocarbon, and speciated hydrocarbons emissions were studied by varying the properties of the test gasoline in the range of Japanese market, characterized by low **T50**, T90, and low sulfur content (< 100 ppm). The Japanese 10.15 mode emissions under hot-transient conditions were measured on a vehicle equipped with a three-way catalyst. The sulfur content was more effective on exhaust CO, NO(sub)x, and total hydrocarbon emissions than **T50**, T90 or hydrocarbon types of gasoline. Sensitivity to sulfur was a function of the speciated hydrocarbons. Increasing the sulfur content significantly increased exhaust **paraffins**, but had no significant effect on **olefins**. Of the **aromatics**, exhaust **benzene** was the most sensitive to sulfur. Tables, graphs, diagrams, and references.
CC AIR POLLUTION SOURCES; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 11104-93-1; 12795-06-1; 630-08-0; 71-43-2; *AIR POLLUTANT; ALKANE; **AROMATIC** HYDROCARBON; ASIA; ASSOCIATION; *AUTOMOTIVE EXHAUST GAS; **BENZENE**; **BENZENE** RING; BUSINESS OPERATION; C6; CARBON; CARBON MONOXIDE; CARBON OXIDE; CATALYST; COMPOSITION; COMPOUNDS; CONCENTRATION; EFFICIENCY; ENGINE; *EXHAUST GAS; GROUP IVA; GROUP VA; *GROUP VIA; HIGH TEMPERATURE; HYDROCARBON; IDE; *IMPURITY; INTERNAL COMBUSTION ENGINE; JAPAN; MARKETING; MATERIALS TESTING; MEASURING; MEETING PAPER; *MOTOR FUEL; *MOTOR GASOLINE; MOTOR VEHICLE; NIPPON OIL; NITROGEN; NITROGEN OXIDE; **OLEFIN**; OPERATING CONDITION; OXYGEN; PHYSICAL PROPERTY; *POLLUTANT; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SPARK IGNITION ENGINE; *SULFUR; SULFUR CONTENT; TEMPERATURE; THERMODYNAMIC PROPERTY; THREE WAY CATALYST; UNBURNED HYDROCARBON; UNSATURATED; UNSTEADY STATE; *USE; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL
LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR
LT AIR POLLUTANT; ALKANE; COMPOUNDS; HYDROCARBON; POLLUTANT; SATURATED CHAIN; SINGLE STRUCTURE TYPE; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; OLEFIN; POLLUTANT; UNSATURATED; WASTE MATERIAL
LT AIR POLLUTANT; AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON; POLLUTANT; WASTE MATERIAL
LT 71-43-2; AIR POLLUTANT; BENZENE; BENZENE RING; C6; HYDROCARBON; POLLUTANT; SINGLE STRUCTURE TYPE; WASTE MATERIAL
LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
ATM Template not available

L9 ANSWER 2 OF 2 APILIT COPYRIGHT 1999 ELSEVIER
AN 93:13711 APILIT;APILIT2
DN 4006350
TI *Heavy hydrocarbon/volatility study: Fuel blending and analysis for the Auto/Oil Air Quality Improvement Research Program*
AU Kopp V R; Bones C J; Goerr D G; Ho S P; Schubert A J
CS Phillips Petroleum Co; Mobil Research & Development; Phillips 66 Co; Amoco Oil Co; ARCO Products Co
SO SAE International Congress (Detroit 3/1-5/93) Paper N.930143 27P ISSN: 0148-7191
DT Conference
LA English
AB *Heavy hydrocarbon/volatility study: Fuel blending and analysis for the Auto/Oil Air Quality Improvement Research Program.* The Heavy Hydrocarbon/Volatility fuel study was initiated to better understand the 90% distillation point (T90) effect observed in the **Aromatics** /MTBE/**olefins**/T90 matrix of Phase I. The study was comprised of two matrices and 26 fuels. The first 18 fuel matrix, designated as the "A" matrix, studied the effects of medium, heavy, and tail reformate and medium and heavy catalytically cracked components. The second eight-fuel matrix, designated as the "B" matrix, considered 50% distillation (**T50**) effects vs. light paraffinic hydrocarbons (isomerate and light alkylate). The second matrix also considered the effects of heavy **aromatics** vs. heavy **paraffins**. Physical property data for the 26 fuels and 10 blending components were included. The fuels speciation methodology is summarized. This is the chromatographic analysis method used within the Auto/Oil Air Quality Improvement Research Program to provide individual chemical species. Various physical and speciation data from Phase I and Phase II program fuels are also included for completeness on all the fuels studied. Tables.
CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 1634-04-4; ADDITIVE; *AIR QUALITY; ALKANE; AMOCO; **AROMATIC** HYDROCARBON; AROMATIZATION; ASSOCIATION; ATLANTIC RICHFIELD; **BENZENE** RING; BLENDING; BRANCHED CHAIN; C5; CATALYTIC CRACKING; CATALYTIC REFORMING; COMPOSITION; COMPOUNDS; *DISTILLATION; ETHER; GASOLINE STOCK; HYDROCARBON; MEETING PAPER; MIXING; MOBIL OIL; MOLECULAR WEIGHT; *MOTOR FUEL; OCTANE BOOSTER; **OLEFIN**; PARAFFINIC; *PETROLEUM FRACTION; PHILLIPS PETROLEUM; *PHYSICAL PROPERTY; *PHYSICAL SEPARATION; PRIOR TREATMENT; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; *THERMODYNAMIC PROPERTY; UNSATURATED; *USE; *VAPOR PRESSURE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
LT AROMATIZATION; CATALYTIC REFORMING; PRIOR TREATMENT
LT ALKANE; COMPOUNDS; HYDROCARBON; SATURATED CHAIN; SINGLE STRUCTURE TYPE
ATM Template not available

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L2            24 SEA FILE=APILIT ABB=ON  PLU=ON  T50
L4            25 SEA FILE=APILIT ABB=ON  PLU=ON  'T(SUB)5(SUB)0'
L5            25 SEA FILE=APILIT ABB=ON  PLU=ON  L4 AND (FUEL# OR GAS?)
L7           653 SEA FILE=APILIT ABB=ON  PLU=ON  AROMATIC# AND OLEFIN# AND
                 BENZENE# AND PARAFFIN#
L8            41 SEA FILE=APILIT ABB=ON  PLU=ON  L5 OR L2
L9             2 SEA FILE=APILIT ABB=ON  PLU=ON  L7 AND L8
L11           14 SEA FILE=APILIT ABB=ON  PLU=ON  L8 NOT (L5 OR L9)
L12           11 SEA FILE=APILIT ABB=ON  PLU=ON  L11 AND (FUEL# OR GASOLINE#)
L13            6 SEA FILE=APILIT ABB=ON  PLU=ON  EMISSION# AND L12

=> d all 1-6 l13
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L13 ANSWER 1 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 97:20344 APILIT;APILIT2
DN 4435916
TI Analysis of the sensitivity of a direct-injection diesel automobile engine to diesel **fuel** characteristics
Analyse de la sensibilite aux parametres gazoles d'un moteur diesel d'automobile a injection directe
AU Gerini A; Montagne X
CS IFP
SO Revue de l'Institut Francais du Petrole V52 N.5 513-30 (September-October 1997) (in French with English abstract) ISSN: 0020-2274
DT Journal
LA French
AB Analysis of the sensitivity of a direct-injection diesel automobile engine to diesel **fuel** characteristics. Exhaust **emissions**, both unregulated (PAH, aldehydes) and regulated, and noise levels were measured during bench tests of a direct-injection, supercharged diesel car engine, Audi 1Z type, using a set of seven diesel **fuels** of widely varying hydrocarbon composition (paraffins, naphthenes, total aromatics, mono-, di-, and triaromatics), cetane index (CI), density, viscosity, and distillation characteristics (T5, **T50**, T95). The engine was tested under standard tuning conditions (injection timing, EGR rate). Increasing CI and decreasing density and polyaromatics content of the **fuel** significantly reduced **emissions** of CO and unburned hydrocarbons and the volatile organic fraction of exhaust particulate, but the insoluble organic fraction of the particulate increased with increasing CI under some conditions. Total particulate **emissions** did not depend on CI, but increased with increasing **fuel** viscosity and increasing content of light fractions (T5 value). Engine noise level strongly decreased with increasing **fuel** CI. Tables, graphs, and references.
CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT
CT 12795-06-1 (BT); 630-08-0; AIR POLLUTANT; ALKANE; AROMATIC; *AROMATIC HYDROCARBON; AUTOMOBILE; *AUTOMOTIVE **EMISSION** CONTROL; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST GAS; *BENZENE RING; CARBON; CARBON MONOXIDE; CARBON OXIDE; CETANE NUMBER; COMPOSITION; *COMPOUNDS; COMPRESSION IGNITION ENGINE; DENSITY; DIESEL ENGINE; *DIESEL **FUEL** ; DISTILLATION; *ECONOMIC FACTOR; ENGINE; ENGINE NOISE; ENGINE PERFORMANCE; EXHAUST GAS; **FUEL** PERFORMANCE; *FUSED OR BRIDGED RING; GROUP IVA; GROUP VIA; *HYDROCARBON; IDE; IFP; INJECTION; INSOLUBLE; INTERNAL COMBUSTION ENGINE; LABORATORY SCALE; *LEGAL CONSIDERATION; MEASURING; *MOTOR **FUEL**; MOTOR VEHICLE; NAPHTHENES; NOISE; OXYGEN; PARTICULATES; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTANT; *POLLUTION CONTROL; *POLYNUCLEAR AROMATIC HYDROCARBON; SATURATED CARBOCYCLIC; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SOLUBILITY; UNBURNED HYDROCARBON; VISCOSITY; VOLATILE ORGANIC COMPOUNDS; WASTE GAS; WASTE MATERIAL
LT AIR POLLUTANT; AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; FUSED OR BRIDGED RING; HYDROCARBON; POLLUTANT; POLYNUCLEAR AROMATIC HYDROCARBON; WASTE MATERIAL
LT 12795-06-1 (BT); 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
LT AIR POLLUTANT; PARTICULATES; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; POLLUTANT; VOLATILE ORGANIC COMPOUNDS; WASTE MATERIAL

LT ALKANE; COMPOUNDS; HYDROCARBON; SATURATED CHAIN; SINGLE STRUCTURE TYPE
LT COMPOUNDS; HYDROCARBON; NAPHTHENES; SATURATED CARBOCYCLIC
ATM Template not available

L13 ANSWER 2 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 97:18415 APILIT;APILIT2
DN 4408550
TI Effect of California Phase 2 reformulated **gasoline** specifications on exhaust **emission** reduction--3
AU Takei Y; Uehara T; Hoshi H; Sugiyama S; Okada M
CS Toyota Motor Corp
SO SAE International Fall Fuels & Lubricants Meeting (Tulsa 10/13-16/97) SAE Special Publication N.SP-1296 103-10 (1997) (Paper #SAE 972851)
DT Conference
LA English
AB Effect of California Phase 2 reformulated **gasoline** specifications on exhaust **emission** reduction--3. To study the effect of sulfur and distillation properties on exhaust **emissions**, tests were conducted using a California Low **Emission** Vehicle (LEV) in accord with the 1975 Federal Test Procedure. To study the **fuel** effect on the exhaust **emissions** from different systems, these results were compared with those from published studies using a 1992 model year vehicle for California Tier 1 standards and a 1994 model year vehicle for California TLEV standards. As **fuel** sulfur was changed from 30 to 300 ppm, the exhaust **emissions** from the LEV increased .approx. 20% in NMHC, 17% in CO, and 46% in NO(sub)x. The effect of sulfur poisoning persisted more in the LEV than in Tier 1 or TLEV vehicles. **T50** and T90 had large effects on exhaust **emissions**. Increasing **T50** and T90 caused increasing exhaust hydrocarbon **emissions**. When the California Phase 2 certification **gasoline** was used, hydrocarbons and CO dropped 51 and 71%, respectively, compared with LEV with unmodified **fuel** enrichment. Tables, graphs, and references.
CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; STANDARDIZATION
CT *11104-93-1; *12795-06-1 (BT); *630-08-0; AIR POLLUTANT; ASSOCIATION; *AUTOMOTIVE **EMISSION** CONTROL; AUTOMOTIVE EXHAUST GAS; CALIFORNIA; *CARBON; *CARBON MONOXIDE; *CARBON OXIDE; *CERTIFICATION; COMPOSITION; COMPOUNDS; CONCENTRATION; DISTILLATION; DISTRICT 5; *ECONOMIC FACTOR; EXHAUST GAS; *GROUP IVA; *GROUP VA; *GROUP VIA; HYDROCARBON; *IDE; *LEGAL CONSIDERATION; MEETING PAPER; MODEL; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; NATIONAL; *NITROGEN; *NITROGEN OXIDE; NONMETHANE HYDROCARBONS; NORTH AMERICA; *OXYGEN; PHYSICAL SEPARATION; POLLUTANT; *POLLUTION CONTROL; POLLUTION SOURCE; *REFORMULATED **GASOLINE**; SAE; *SPECIFICATION; UNBURNED HYDROCARBON; USA; WASTE GAS; WASTE MATERIAL
LT MODEL; MOTOR VEHICLE
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; NONMETHANE HYDROCARBONS; POLLUTANT; WASTE MATERIAL
LT 12795-06-1 (BT); 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
ATM Template not available

L13 ANSWER 3 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 96:19410 APILIT;APILIT2
DN 4308377
TI The influence of **gasoline** mid-range to back-end volatility on exhaust **emissions**
AU McArraghar J S; Becker R F; Goodfellow C L; Jeffrey J G; Lien M; Morgan T D B; Scorletti P; Snelgrave D G; Zemroch P J; Hutcheson R C

CS CONCAWE
SO CONCAWE [Report] N.95/61 (October 1996) 21P ISSN: 0253-8644
DT Report
LA English
AB The influence of **gasoline** mid-range to back-end volatility on exhaust **emissions**. Recent published studies that evaluate the effects of mid-range to back-end volatility on the regulated **emissions** from **gasoline**-powered vehicles show that there are no wholly definitive data defining exactly which distillation parameters are the true causative factors in influencing tail-pipe **emissions**, partly due to the necessary physical constraint of a certain degree of intercorrelation between adjacent distillation parameters (e.g., **T50** and T60). However, there is a balance of evidence suggesting that the effect is best described by parameters in the mid-range region. Distillation effects were found to be somewhat more important than the back-end compositional effects for hydrocarbons and CO **emission**, but the opposite was true for NO(sub)x. Graphs and references.
CC AIR POLLUTION SOURCES; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT *11104-93-1; *12795-06-1; *630-08-0; *AIR POLLUTANT; ASSOCIATION; *AUTOMOTIVE EXHAUST GAS; *CARBON; *CARBON MONOXIDE; *CARBON OXIDE; COMPOUNDS; CONCAWE; DISTILLATION; ECONOMIC FACTOR; *EXHAUST GAS; *GROUP IVA; *GROUP VA; *GROUP VIA; HYDROCARBON; *IDE; LEGAL CONSIDERATION; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; *NITROGEN; *NITROGEN OXIDE; *OXYGEN; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; *POLLUTION SOURCE; TAILPIPE; THERMODYNAMIC PROPERTY; UNBURNED HYDROCARBON; *USE; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL
LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
ATM Template not available

L13 ANSWER 4 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 96:19073 APILIT;APILIT2
DN 4307894
TI The independent effects of **fuel** aromatic content and mid-range volatility on tailpipe **emissions** from current technology European vehicle fleets
AU McDonald C R; Graupner O; Wilkinson E; Morgan T D B
CS Shell Research & Technology Centre; Deutsche Shell AG; Shell Recherche SA
SO SAE International Fall Fuels & Lubricants Meeting (San Antonio, TX 10/14-17/96) SAE Special Publication N.SP-1214 107-25 (1996) (SAE Paper #962026)
DT Conference
LA English
AB The independent effects of **fuel** aromatic content and mid-range volatility on tailpipe **emissions** from current technology European vehicle fleets. A **fuels** matrix with aromatics and mid-range volatility (**T50**), independently varied, was applied to catalyst and non-catalyst fleets consisting of vehicles currently driven in Europe. The **fuels** matrix included 7.5 vol % MTBE as a target value. For the catalyst fleet, reducing aromatics or **T50** gave lower hydrocarbons/CO. After catalyst light-off, decreasing aromatics gave more NO(sub)x, sufficient to determine the direction of the composite cycle response. This was consistent with the recent European Program for **Emissions, Fuels**, & Engine (EPEFE) results (future technology vehicles), confirming the general applicability of the EPEFE conclusions. In general, hydrocarbon/CO responses from the non-catalyst fleet were directionally similar although statistically less robust. However, at high volatility, reducing aromatics increased hydrocarbons/CO. NO(sub)x was reduced by decreasing aromatics and, to a lesser extent,

mid-range volatility. Tables, graphs, and references.

CC AIR POLLUTION CONTROL; AIR POLLUTION SOURCES; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 11104-93-1; 12795-06-1; 1634-04-4; 630-08-0; ADDITIVE; AIR POLLUTANT; AROMATIC; ASSOCIATION; *AUTOMOTIVE **EMISSION** CONTROL; AUTOMOTIVE **EMISSION** CONTROL EQUIP; AUTOMOTIVE EXHAUST GAS; BRANCHED CHAIN; C5; CARBON; CARBON MONOXIDE; CARBON OXIDE; CATALYST; CATALYTIC MUFFLER; COMPOSITION; COMPOUNDS; ETHER; ETHER CONTENT; EUROPE; EXHAUST GAS; GROUP IVA; GROUP VA; GROUP VIA; HYDROCARBON; IDE; LIGHTOFF TEMPERATURE; MATHEMATICS; MEETING PAPER; *MOTOR **FUEL**; *MOTOR **GASOLINE** ; MOTOR VEHICLE; MTBE CONTENT; MUFFLER; NITROGEN; NITROGEN OXIDE; NONCATALYTIC; NONE; OCTANE BOOSTER; OPERATING CONDITION; OXYGEN; PHYSICAL PROPERTY; POLLUTANT; *POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; ROBUSTNESS; SAE; SATURATED CHAIN; SHELL OIL; SINGLE STRUCTURE TYPE; STATISTICAL ANALYSIS; TAILPIPE; TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; TRANSPORTATION INDUSTRY; UNBURNED HYDROCARBON; *USE; VAPOR PRESSURE; WASTE GAS; WASTE MATERIAL

LT CATALYST; NONE; USE

LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL

ATM Template not available

L13 ANSWER 5 OF 6 APILIT COPYRIGHT 1999 ELSEVIER

AN 95:4487 APILIT;APILIT2

DN 4202135

TI The influence of heavy **gasoline** components on the exhaust **emissions** of European vehicles--1. Regulated **emissions**

AU McArragher J S; Betts W E; Goodfellow C L; Floeysand S A; Jeffrey J G; Morgan R D B; Schmiedel H P; Scorletti P; Snelgrove D G; Zemroch P J; Hutcheson R C

SO CONCAWE [Report] N.94/59 (December 1994) 78P ISSN: 0253-8644

DT Report

LA English

AB The influence of heavy **gasoline** components on the exhaust **emissions** of European vehicles--1. Regulated **emissions**. Ten European vehicles were tested on seven **gasolines** over the current ECE/EUDC test cycle to determine the effects of heavy **gasoline** components in terms of both distillation temperature (e.g., T90) and composition on **emissions** performance of a fleet of modern, **fuel**-injected catalyst cars. **Gasoline** back end volatility and composition affect regulated **emissions** performance. For HC (hydrocarbon) and CO **emissions**, this volatility has a larger effect than composition. However, the back-end effects were discontinuous with no measurable effect between the 160.degree. and 180.degree.C T90 **fuels**. The **fuel** effects on NO(sub)x **emissions** were in the opposite direction to those for HC and CO, and compositional influences in this instance were greater than those due to back-end volatility. Back-end volatilities of the test **fuels** differed to an increasing extent from mid-range (**T50**) to final boiling point. The **fuel** effects could not be ascribed to any one distillation point within this range, neither distillation temperatures at percent volumes recovered (T values), nor percent evaporated volumes at certain temperatures (E values). Tables and graphs.

CC AIR POLLUTION SOURCES; HEALTH & ENVIRONMENT; MOTOR FUELS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 11104-93-1; 12795-06-1; 630-08-0; *AIR POLLUTANT; *AUTOMOTIVE EXHAUST GAS; BOILING POINT; CARBON; CARBON MONOXIDE; CARBON OXIDE; CATALYST;

COMPOSITION; COMPOUNDS; DISTILLATION; DISTILLATION RANGE; *ECONOMIC FACTOR; *EXHAUST GAS; FINAL BOILING POINT; **FUEL** INJECTION; FULL SCALE; GROUP IVA; GROUP VA; GROUP VIA; HYDROCARBON; IDE; INJECTION; *LEGAL CONSIDERATION; MATERIALS TESTING; *MOTOR **FUEL**; *MOTOR **GASOLINE**; *MOTOR VEHICLE; NITROGEN; NITROGEN OXIDE; OPERATING CONDITION; OXYGEN; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; TEMPERATURE; TEMPERATURE 125 TO 200 C; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON; *USE; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL

ATM Template not available

L13 ANSWER 6 OF 6 APILIT COPYRIGHT 1999 ELSEVIER

AN 94:15461 APILIT;APILIT2

DN 4106310

TI Reformulated **gasoline** effects on exhaust **emissions**: Phase II: Continued investigation of the effects of **fuel** oxygenate content, oxygenate type, volatility, sulfur, olefins and distillation parameters

AU Mayotte S C; Rao V; Lindhjem C E; Sklar M S

CS EPA

SO SAE Fuels & Lubricants Meeting (Baltimore 10/17-20/94) SAE Meeting Paper N.941974 (1994) 11P ISSN: 0148-7191

DT Conference

LA English

AB Reformulated **gasoline** effects on exhaust **emissions**: Phase II: Continued investigation of the effects of **fuel** oxygenate content, oxygenate type, volatility, sulfur, olefins and distillation parameters. In Phase II, 12 **fuels** on a fleet of 39 light-duty vehicles were tested. The Phase II **fuel** parameters studied included Rvp, the 50 and 90% evaporative distillation temperatures (**T50** and T90), sulfur content, aromatics content, olefin content, oxygenate type (MTBE, ethanol) and oxygen content. Measured exhaust **emissions** included total hydrocarbons (THC), NO(sub)x, CO, CO(sub)2, benzene, 1,3-butadiene, acetaldehyde, and formaldehyde. Oxygen, aromatics, and olefins have the greatest influence on determining THC **emissions** while sulfur and T90 have the greatest influence on NO(sub)x **emissions**. For benzene **emissions**, the aromatics and benzene content of the **fuel** are the key parameters. For the other measured exhaust **emissions**, no single **fuel** parameter was standing out as the key parameter in determining **emissions** performance. Tables.

CC AIR POLLUTION SOURCES; CRUDE OILS; FUEL REFORMULATION; HEALTH & ENVIRONMENT; PETROLEUM PROCESSES; PETROLEUM REFINING AND PETROCHEM

CT 106-99-0; 11104-93-1; 124-38-9; 12795-06-1; 1634-04-4; 50-00-0; 630-08-0; 64-17-5; 71-43-2; 75-07-0; 1,3-BUTADIENE; ACETALDEHYDE; ADDITIVE; *AIR POLLUTANT; ALDEHYDE; AROMATIC; AROMATIC HYDROCARBON; ASSOCIATION; *AUTOMOTIVE EXHAUST GAS; BENZENE; BENZENE CONTENT; BENZENE RING; BOILING POINT; BRANCHED CHAIN; C1; C2; C4; C5; C6; CARBON; CARBON DIOXIDE; CARBON MONOXIDE; CARBON OXIDE; COMPOSITION; COMPOUNDS; DEGREE OF UNSATURATION; DISTILLATION; EQUIPMENT TESTING; ETHER; ETHYL ALCOHOL; EVAPORATION; *EXHAUST GAS; FORMALDEHYDE; FULL SCALE; GROUP IVA; GROUP VA; GROUP VIA; HYDROCARBON; IDE; IMPURITY; LIGHT DUTY; MEASURING; MEETING PAPER; MONOHYDROXY; *MOTOR **FUEL**; *MOTOR **GASOLINE**; MOTOR VEHICLE; MULTIOLEFINIC; NITROGEN; NITROGEN OXIDE; OCTANE BOOSTER; OLEFIN; OXYGEN; OXYGENATE CONTENT; PHASE CHANGE; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; PRODUCT QUALITY; *REFORMULATED **GASOLINE**; REID VAPOR PRESSURE; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; SULFUR; SULFUR CONTENT; TERMINAL OLEFINIC; TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON;

UNSATURATED; UNSATURATED CHAIN; US ENVIRONMENTAL PROTECTION AGCY; *USE; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL
LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
LT 64-17-5; ADDITIVE; C2; ETHYL ALCOHOL; MONOHYDROXY; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; USE
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL
LT 11104-93-1; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 124-38-9; 12795-06-1; AIR POLLUTANT; CARBON; CARBON DIOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL
LT 71-43-2; AIR POLLUTANT; BENZENE; BENZENE RING; C6; HYDROCARBON; POLLUTANT; SINGLE STRUCTURE TYPE; WASTE MATERIAL
LT 106-99-0; 1,3-BUTADIENE; AIR POLLUTANT; C4; HYDROCARBON; MULTIOLEFINIC; POLLUTANT; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; TERMINAL OLEFINIC; UNSATURATED CHAIN; WASTE MATERIAL
LT 75-07-0; ACETALDEHYDE; AIR POLLUTANT; ALDEHYDE; C2; POLLUTANT; SATURATED CHAIN; SINGLE STRUCTURE TYPE; WASTE MATERIAL
LT 50-00-0; AIR POLLUTANT; ALDEHYDE; C1; FORMALDEHYDE; POLLUTANT; WASTE MATERIAL
LT AIR POLLUTANT; AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON; POLLUTANT; WASTE MATERIAL
ATM Template not available

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L16          95 SEA FILE=APILIT ABB=ON  PLU=ON  RVP (3A) PSI
L18           6 SEA FILE=APILIT ABB=ON  PLU=ON  L16 (2A) 6

=> d all 3, 5-6 l18
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L18 ANSWER 3 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 82:9168 APILIT;APILIT2
DN 2909118
TI A COMPUTER MODEL FOR THE PREDICTION OF VAPOR LOCK IN THE FUEL PUMPS OF A CARBURETTED ENGINE
AU PERSON J K; CADDOCK B D; ORMAN P L
CS SHELL RES. S.A. ; SHELL RES. LTD.
SO SAE FUELS LUBR. MEET. (TORONTO 10/18-21/82) PAP. N.821201 19P
LA English
AB A Computer Model for the Prediction of Vapor Lock in the Fuel Pumps of a Carburetted Engine has been developed, which predicted correctly most of the measured results for three different cars, run on different test fuels (**6**-18 **psi Rvp**) during standard hot fuel
handling test procedures (including steady running, soak and full-throttle acceleration phases). It uses gas-liquid chromatographic analysis of the gasoline as fuel input data. The model could be used to reduce substantially the amount of dynamometer testing required to characterize a car, and to assess the effect of component changes and modifications on car performance. The key to modeling success has been the accurate prediction of the fuel system temperatures, and the expertise gained in the present work is being used to develop a mechanistic model of aspects of carburetor percolation. Tables, diagrams, and graphs.
CC MOTOR FUELS; PETROLEUM REFINING AND PETROCHEM
CT ACCELERATION; ACCURACY; ANALYTICAL METHOD; ASSOCIATION; AUTOMOBILE; AUTOMOTIVE ENGINE; CARBURETOR; CHROMATOGRAPHY; COMPUTER SIMULATION; COMPUTING; DATA CORRELATION; DYNAMOMETER; ENGINE; ENGINE IDLE; ENGINE OPERATING CONDITION; ENGINE PERFORMANCE; ENGINE TEST; EQUIPMENT TESTING; FILTRATION; FUEL CONSUMPTION; FUEL PUMP; FUEL SYSTEM; GAS CHROMATOGRAPHY; HEAT SOAKING; HIGH TEMPERATURE; INSTRUMENT; MATERIAL HANDLING; MATERIALS TESTING; MEETING PAPER; MODIFICATION; *MOTOR FUEL; *MOTOR GASOLINE; MOTOR VEHICLE; OPERATING CONDITION; PHYSICAL PROPERTY; PHYSICAL SEPARATION; PUMP; SAE; SHELL OIL; TEMPERATURE; THERMODYNAMIC PROPERTY; THROTTLE SETTING; TREATING; *VAPOR LOCK; VAPOR PRESSURE; VELOCITY

L18 ANSWER 5 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 70:14377 APILIT;APILIT2
DN 1714360
TI EKOFISK CRUDE IS RATED FIRST CLASS
AU PHILLIPS PETROLEUM CO
SO OIL GAS J V68 N.43 70-71 (10/26/70)
LA UNAVAILABLE
AB EKOFISK CRUDE IS RATED FIRST CLASS Analyses of crude oils recovered in drill-stem tests from Phillips Petroleum Co.'s 2X well in the Norwegian North Sea Ekofisk field gave 35.6degree API gravity, 0.18% sulfur, +25degreeF pour point, 44.3 SUS viscosity at 100degreeF, an initial boiling point of +77degreeF, and an **Rvp** of **6**.0
psi at 100degreeF. Tabulations show vacuum flash data and light and heavy fraction data for Ekofisk composite crude.
CC CRUDE OILS; PETROLEUM REFINING AND PETROCHEM
CT 8002-05-9; BOILING POINT; COMPOSITION; CRUDE OIL; *CRUDE OIL (WELL); DATA; DISTILLATION; DRILLING (WELL); FLASH VAPORIZATION; GRAVITY; NORTH SEA;

NORWAY; OIL AND GAS FIELDS; OIL WELL; PETROLEUM; PETROLEUM FRACTION; PHASE CHANGE; PHILLIPS PETROLEUM; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POUR POINT; SEA; SULFUR CONTENT; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; VACUUM DISTILLATION; VAPOR PRESSURE; VAPORIZATION; VISCOSITY; WELL; WESTERN EUROPE

L18 ANSWER 6 OF 6 APILIT COPYRIGHT 1999 ELSEVIER
AN 66:5114 APILIT;APILIT2
DN 1305422
TI CUTTING GASOLINE VOLATILITY IS INFERIOR ROUTE TO SMOG CONTROL
AU UNION OIL CO OF CALIFORNIA; KELLER K K; BYRNE J
SO OIL GAS J V64 N.20.156 (5 16 66)
LA UNAVAILABLE
AB CUTTING GASOLINE VOLATILITY IS INFERIOR ROUTE TO SMOG CONTROL A Union Oil Co. of California study of motor front-end volatility, carried out by K. K. Keller and J. Byrne, indicates that reducing the volatility of gasoline by 3 **psi** to **6 Rvp** would reduce evaporation losses by 50% but the additional fuel required to warm the engine to satisfactory performance levels would cause the loss of three times as much vapor, as well as increase fuel costs. In contrast, a loss-proof fuel system would eliminate substantially all vapor losses with no increase in fuel consumption and a net reduction in fuel costs per car. Possible designs for a loss-proof fuel system are reported. Graph.
CC AIR AND WATER CONSERVATION; AIR POLLUTION; MOTOR FUELS; PETROLEUM REFINING AND PETROCHEM
CT *AIR POLLUTION; CARBURETOR; COST; DESIGN; ECONOMIC FACTOR; ENGINE PERFORMANCE; ENGINEERING; *EVAPORATION LOSS; FUEL CONSUMPTION; FUEL TANK; MOTOR FUEL; *MOTOR GASOLINE; OPERATING CONDITION; PHYSICAL PROPERTY; *SMOG; STORAGE FACILITY; TANK; THERMODYNAMIC PROPERTY; UNION OIL; *VAPOR PRESSURE; WASTE MATERIAL

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L19      252985 SEA FILE=HCAPLUS ABB=ON  PLU=ON  FUEL# OR GASOLINE#
L21         760 SEA FILE=HCAPLUS ABB=ON  PLU=ON  T50
L30          28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND L21
L31          11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  EMISSION# AND L30
```

=> d all 1-2, 4-5, 9-11

L31 ANSWER 1 OF 11 HCAPLUS

AN 1998:768625 HCAPLUS

DN 130:56256

TI Impact of California Reformulated **Gasoline** on Motor Vehicle **Emissions**. 1. Mass **Emission** Rates

AU Kirchstetter, Thomas W.; Singer, Brett C.; Harley, Robert A.; Kendall, Gary R.; Traverse, Michael

CS Department of Civil and Environmental Engineering, University of California, Berkeley, CA, 94720-1710, USA

SO Environ. Sci. Technol. (1999), 33(2), 318-328
CODEN: ESTHAG; ISSN: 0013-936X

PB American Chemical Society

DT Journal

LA English

CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51

AB This paper addresses the impact of California phase 2 reformulated **gasoline** (RFG) on motor vehicle **emissions**. Phase 2 RFG was introduced in the San Francisco Bay Area in the first half of 1996, resulting in large changes to **gasoline** compn. Oxygen content increased from 0.2 to 2.0 wt%; and alkene, arom., benzene, and sulfur contents decreased. **Gasoline** d. and **T50** and T90 distn. temps. also decreased. Light-duty vehicle **emission** rates were measured in a Bay Area roadway tunnel in summers 1994-1997. Vehicle speeds and driving conditions inside the tunnel were similar each year. The av. model year of the vehicle fleet was about one year newer each successive summer. Large redns. in pollutant **emissions** were measured in the tunnel over the course of this study, due to a combination of RFG and fleet turnover effects. Between summers 1994 and 1997, **emissions** of carbon monoxide decreased by 31 .+-. 5%, non-methane volatile org. compds. (VOC) decreased by 43 .+-. 8%, and nitrogen oxides (NOx) decreased by 18 .+-. 4%. It was difficult to sep. clearly the fleet turnover and RFG contributions to these changes. Nevertheless, it was clear that the effect of RFG was greater for VOC than for NOx. The RFG effect on vehicle **emissions** of benzene was estd. to be a 30-40% redn. Use of RFG increased formaldehyde **emissions** by about 10%, while acetaldehyde **emissions** did not change significantly. RFG effects reported here may not be the same for other driving conditions or for other vehicle fleets. RFG effects on evaporative **emissions** are also important. The combined effect of phases 1 and 2 of California's RFG program was a 20% redn. in **gasoline** vapor pressure, about one-fifth of which occurred following the introduction of phase 2 RFG.

ST reformulated **gasoline** air pollution California; exhaust **emission** reformulated **gasoline**

IT Air pollution control
Exhaust pollution
(impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT **Gasoline**
RL: NUU (Nonbiological use, unclassified); PEP (Physical, engineering or

chemical process); PRP (Properties); PROC (Process); USES (Uses)
(impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT Volatile organic compounds
RL: POL (Pollutant); OCCU (Occurrence)
(non-methane, **emission** control of; impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT 630-08-0, Carbon monoxide, formation (nonpreparative) 11104-93-1, NOx, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(**emission** control of; impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT 71-43-2, Benzene, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(**emission** control of; impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT 50-00-0, Formaldehyde, formation (nonpreparative) 75-07-0, Acetaldehyde, formation (nonpreparative) 106-99-0, 1,3-Butadiene, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(impact of California reformulated **gasoline** on motor vehicle **emissions**)

IT 1634-04-4, MTBE
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(impact of California reformulated **gasoline** on motor vehicle **emissions**)

L31 ANSWER 2 OF 11 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:624335 HCAPLUS
DN 129:264561
TI Impact of California Phase 2 reformulated **gasoline** on atmospheric reactivity of exhaust and evaporative **emissions**
AU Kirchstetter, Thomas W.; Singer, Brett C.; Harley, Robert A.; Kendall, Gary R.; Traverse, Michael
CS Department of Civil and Environmental Engineering, University of California, Berkeley, CA, 94720-1710, USA
SO Proc., Annu. Meet. - Air Waste Manage. Assoc. (1997), 90th, RP13901/1-RP13901/15
CODEN: PAMEE5; ISSN: 1052-6102
PB Air & Waste Management Association
DT Journal; (computer optical disk)
LA English
CC 59-3 (Air Pollution and Industrial Hygiene)
AB Phase 2 of California reformulated **gasoline** (RFG) program took effect statewide in the first half of 1996. Changes to **gasoline** compn. required by Phase 2 specifications included: lower vapor pressure; lower olefin, arom., benzene, and sulfur content; lower **T50** and T90; and a min. oxygen content. In this paper, impacts of Phase 2 RFG on the atm. reactivity of motor vehicle exhaust and evaporative **emissions** are described. Volatile org. compds. in motor vehicle exhaust were measured at the Caldecott tunnel in summer 1995 and 1996. Aggregate **emissions** of greater than 8000 vehicles were measured each day. Regular and premium grade **gasoline** samples were collected from service stations in Berkeley concurrently with tunnel measurements both summers. Liq. **gasoline** samples and their headspace vapors were analyzed to det. detailed chem. compn. Normalized reactivity was calcd. for exhaust and evaporative **emissions** by applying max. incremental reactivity values to the detailed speciation profiles. Results indicate that the compn. of **gasoline** in 1996 differed markedly from that of 1995. Changes in liq. **gasoline** compn. led to corresponding changes in the speciation of vehicle exhaust and of **gasoline** headspace vapors. Benzene concn. in liq. **gasoline** decreased from 2.0 to 0.6 wt%, which contributed to a 70

and 37% redn. in benzene wt. fraction in headspace vapors and vehicle exhaust, resp. Addn. of MTBE and redn. of olefins and aroms. in **gasoline** led to significant redns. in the atm. reactivity of unburned **gasoline** and **gasoline** headspace vapors. The normalized reactivity of liq. **gasoline** and headspace vapors decreased by 23 and 19%, resp., between 1995 and 1996. The normalized reactivity of non-methane org. compds. in vehicle exhaust decreased by about 8%, but the uncertainty in this change was large. The redn. in exhaust reactivity was smaller than that for evaporative **emissions** because of an increase in wt. fractions of combustion-derived isobutene and formaldehyde, which have high reactivity.

ST reformulated **gasoline** air pollution California; **gasoline** reformulated evaporative **emission** California

IT Air pollution
Exhaust gases (engine)
Exhaust pollution
Photochemical air pollution
(impact of California Phase 2 reformulated **gasoline** on atm. reactivity of exhaust and evaporative **emissions**)

IT **Gasoline**
RL: PRP (Properties)
(impact of California Phase 2 reformulated **gasoline** on atm. reactivity of exhaust and evaporative **emissions**)

IT Alkanes, miscellaneous
Alkenes, miscellaneous
Aromatic hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(in reformulated **gasoline**; impact of California Phase 2 reformulated **gasoline** on atm. reactivity of exhaust and evaporative **emissions**)

IT 10028-15-6, Ozone, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(impact of California Phase 2 reformulated **gasoline** on atm. reactivity of exhaust and evaporative **emissions**)

IT 71-43-2, Benzene, miscellaneous 1634-04-4, MTBE 7704-34-9, Sulfur, miscellaneous 7782-44-7, Oxygen, miscellaneous
RL: MSC (Miscellaneous)
(in reformulated **gasoline**; impact of California Phase 2 reformulated **gasoline** on atm. reactivity of exhaust and evaporative **emissions**)

L31 ANSWER 4 OF 11 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:161355 HCAPLUS
TI An evaluation of properties for California reformulated **gasoline**
AU Bevan, Analisa R.; Brasil, Tony A.; Guthrie, James J.
CS Stationary Source Division, California Air Resources Board, Sacramento, CA, 95814, USA
SO Book of Abstracts, 213th ACS National Meeting, San Francisco, April 13-17 (1997), FUEL-081 Publisher: American Chemical Society, Washington, D. C. CODEN: 64AOAA
DT Conference; Meeting Abstract
LA English
AB California began using a cleaner-burning reformulated **gasoline** in Mar. 1996. The California reformulated **gasoline** regulation requires **gasoline** to posses eight specific properties, with flexibility given to refiners to av. properties, or to use a predictive model to blend **gasolines** having equiv. **emission** benefits. An evaluation of properties from data collected from refiners, compliance **fuel** sample monitoring, and the California Energy Commission is used to compile a picture of California reformulated **gasoline**'s av. properties and the range of properties. The properties evaluated include sulfur, arom. hydrocarbon, benzene, olefin, and oxygen content, distn. temps. at **T50** and T90 and Reid vapor pressure for winter and summertime blends. Addnl., data have been collected pertaining to the energy d. and **fuel** economy effects

of this cleaner-burning **fuel**. Data were collected to evaluate **emission** performance, **fuel** economy, and compliance with regulated specifications. This evaluation confirms the Air Resources Board's pre-regulation anal. on **emission** performance and **fuel** economy.

L31 ANSWER 5 OF 11 HCAPLUS
AN 1997:8394 HCAPLUS
DN 126:77188
TI The independent effects of **fuel** aromatic content and mid-range volatility on tailpipe **emissions** from current technology European vehicle fleets
AU Mcdonald, C. R.; Morgan, T. D. B.; Graupner, O.; Wilkinson, E.
CS Shell Research and Technology Centre, UK
SO Soc. Automot. Eng., [Spec. Publ.] SP (1996), SP-1214(Gasoline Performance and Deposit Control Additives), 107-125
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB A **fuels** matrix with aroms. and mid-range volatility (**T50**
) independently varied was applied to 2 fleets (catalyst and non-catalyst) consisting of vehicles currently driven in Europe. For the catalyst fleet, reducing aroms. or **T50** gave lower HC/CO. After catalyst light-off, decreasing aroms. gave more NOx, sufficient to det. the direction of the composite cycle response. This is fully consistent with recent EPEFE results (future technol. vehicles), confirming the general applicability of the EPEFE conclusions. Mostly, HC/CO responses from the non-catalyst fleet were directionally similar, though statistically less robust. However, at high volatility, reducing aroms. increased HC/CO. NOx was reduced by lowering aroms. and, to a lesser extent, mid-range volatility.
ST **gasoline** arom content exhaust **emission**; distn
gasoline volatility exhaust **emission**
IT Exhaust gases (engine)
(effects of **gasoline** arom. content and mid-range volatility on tailpipe **emissions** from current technol. European vehicle fleets)
IT Aromatic hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(effects of **gasoline** arom. content and mid-range volatility on tailpipe **emissions** from current technol. European vehicle fleets)
IT Hydrocarbons, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(effects of **gasoline** arom. content and mid-range volatility on tailpipe **emissions** from current technol. European vehicle fleets)
IT **Gasoline**
RL: TEM (Technical or engineered material use); USES (Uses)
(effects of **gasoline** arom. content and mid-range volatility on tailpipe **emissions** from current technol. European vehicle fleets)
IT 630-08-0, Carbon monoxide, occurrence 11104-93-1, Nitrogen oxide, occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(effects of **gasoline** arom. content and mid-range volatility on tailpipe **emissions** from current technol. European vehicle fleets)

L31 ANSWER 9 OF 11 HCAPLUS
AN 1994:487200 HCAPLUS
DN 121:87200

TI Heavy hydrocarbon/volatility study: **Fuel** blending and analysis for the Auto/Oil Air Quality Improvement Research Program
AU Kopp, Vance R.; Doerr, Dennis G.; Bones, Carl J.; Ho, Shi-Ping; Schubert, Adam J.
CS Phillips Pet. Co., USA
SO Soc. Automot. Eng., [Spec. Publ.] SP (1993), SP-1000(AUTO/OIL AIR QUALITY IMPROVEMENT RESEARCH PROGRAM, VOL. 2), 99-123
CODEN: SAESA2; ISSN: 0099-5908
DT Journal
LA English
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB This paper, the third in a series providing **fuel** blending and anal. data for the Auto/Oil Air Quality Improvement Research Program (AQIRP), includes **fuel** prepn. methodologies, anal. techniques, and **fuel** property data, and was initiated in order to better understand the 90% distn. range (T90) effect obsd. in an earlier paper. The study comprises 2 matrixes and 26 **fuels**. The first 18-**fuel** matrix, designated as the "A" matrix, investigated the effects of medium, heavy and tail reformate, and medium and heavy catalytically cracked components. The second 8-**fuel** matrix, designated as the "B" matrix, considered the 50% distn. (**T50**) effects as a function of light paraffinic hydrocarbons (isomerizate and light alkylate) and also considered the effects of heavy aroms. vs. heavy paraffins. Phys. property data for the 26 **fuels** and 10 blending components are included. A summary of the **fuels** speciation methodol. was presented. This is the chromatog. anal. method used within the AQIRP to provide individual chem. species. Results from the AQIRP speciation of the 8 **fuels** comprising the "B" matrix were included. Misc. phys. and speciation data from previous Phase I and Phase II program **fuels** are also presented in an effort to provide complete information on all AQIRP research **fuels**.
ST **gasoline** air pollution blending; heavy hydrocarbon **gasoline** blending air pollution; petroleum fraction **gasoline** blending air pollution
IT Aromatic hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(2blending of, in **gasoline**, air pollution response to)
IT Air pollution
(from **gasoline** combustion, effect of volatility and compn. and blending of heavy petroleum fractions on)
IT Petroleum products
(isomerizates, blends contg., exhaust **emission** response to)
IT **Gasoline**
RL: USES (Uses)
(manuf. of, blending in, air pollution response to, heavy hydrocarbons and volatility in relation to)
IT Petroleum products
(alkylates, blends contg., exhaust **emission** response to)
IT Petroleum products
(cracking fractions, blends contg., exhaust **emission** response to)
IT Petroleum products
(reformates, blends contg., exhaust **emission** response to)

L31 ANSWER 10 OF 11 HCAPLUS COPYRIGHT 1999 ACS
AN 1994:487110 HCAPLUS
DN 121:87110
TI Effects of heavy hydrocarbons in **gasoline** on exhaust mass **emissions**, air toxics, and calculated reactivity - Auto/Oil Air Quality Improvement Research Program
AU Koehl, William J.; Gorse, Robert A.; Knepper, Jay C.; Rapp, Larry A.; Benson, Jack D.; Hochhauser, Albert M.; Leppard, William R.; Reuter, Robert M.; Burns, Vaughn R.; et al.
CS Mobil Res. and Dev. Corp., USA

SO Soc. Automot. Eng., [Spec. Publ.] SP (1993), SP-1000(AUTO/OIL AIR QUALITY IMPROVEMENT RESEARCH PROGRAM, VOL. 2), 151-87
CODEN: SAESA2; ISSN: 0099-5908
DT Journal
LA English
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB **Emission** effects of **gasoline** hydrocarbon components b. >300.degree.F were investigated to det. whether the effect of 90% distn. temp. (T90) found in an earlier Auto/Oil Program study was due to **fuel** distn. properties or to hydrocarbon compn., and also to det. whether the T90 effect is linear. Twenty-six **fuels** were tested in two sets. In matrix A, the independent variables were catalytically cracked (FCC) and reformate stocks with nominal distn. ranges of 300-350, 350-400 and >400.degree.F. In matrix B, the independent variables were a reformate stock (b. 320-370.degree.F), a heavy alkylate (330-475.degree.F), and a light alkylate (b. <300.degree.F), which was used to vary **fuel T50** at fixed levels of T90. Exhaust mass and speciation were measured using 10 1989 vehicles of the Auto/Oil Current Fleet. Tailpipe hydrocarbon **emissions** increased nonlinearly with progressive addn. of the heavier components. The largest increases occurred with the **fuels** that had the highest concns. of the heavier components. The best regression model included the **fuel** vol.% distg. at >300.degree.F as an exponential variable and the vol.% distg. at 200-300.degree.F as a linear variable. Tailpipe NOx decreased with addn. of the heavy components; no effect on CO **emissions** was obsd. **Fuel** hydrocarbon compn. affected toxic air pollutant **emissions** and calcd. ozone-forming reactivity. Increasing **fuel** arom. content increased benzene **emissions**. Increasing **fuel** paraffin and olefin contents increased 1,3-butadiene **emissions**. Specific reactivity calcd. on a unit mass basis increased with increasing FCC or reformate more than with heavy alkylate. Calcg. reactivity-weighted **emissions** showed that adding the heavy components affected reactivity more through effects on HC mass than on specific reactivity. Quant. ests. of all of the **fuel** effects were given.
ST **gasoline** compn air pollutant **emission**; air pollution **gasoline** compn; nitrogen oxide **emission gasoline** compn
IT **Gasoline**
RL: USES (Uses)
(air pollution **emissions** from, effect of heavy **fuel** components on)
IT Air pollution
(from **gasoline** combustion, effect of heavy **fuel** components on)
IT Hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(unburned, **emissions**, from **gasoline** combustion)
IT Aromatic hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(unburned, **emissions**, from **gasoline** combustion, effect of heavy **fuel** components on)
IT Petroleum products
(cracking fractions, heavy, exhaust **emissions** in relation)
IT Petroleum products
(reformates, heavy, exhaust **emissions** in relation)
IT 50-00-0P, Formaldehyde, preparation 71-43-2P, Benzene, preparation 75-07-0P, Acetaldehyde, preparation 106-99-0P, 1,3-Butadiene, preparation 630-08-0P, Carbon monoxide, preparation 11104-93-1P, Nitrogen oxide, preparation
RL: PREP (Preparation)
(formation and **emissions** of, from **gasoline** combustion, effect of heavy **fuel** components on)

L31 ANSWER 11 OF 11 HCAPLUS COPYRIGHT 1999 ACS
AN 1994:222000 HCAPLUS
DN 120:222000
TI Calculation of diesel **fuel** motor characteristics
AU Khots, M. S.; Nazarov, V. I.; Rudyak, K. B.
CS All-Russ. Sci. Res. Inst. Oil Refining, Moscow, 111116, Russia
SO Chemom. Intell. Lab. Syst. (1994), 22(2), 265-71
CODEN: CILSEN; ISSN: 0169-7439
DT Journal
LA English
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
AB A procedure for the calcn. of diesel **fuel** motor characteristics using a set of physicochem. data was proposed. The procedure was developed by measuring a no. of specific diesel **fuel** properties and submitting the data to factor anal., which indicated clustering of diesel **fuels**. The resulting clusters were then submitted to statistical regression. Based on 6 quality parameters [d., viscosity, distn. range (T10, **T50**, and T90), and cetane no.], the specific **fuel** consumption and smoke **emissions** were calcd.
ST diesel **fuel** property regression analysis; statistical regression clustering diesel **fuel**; smoke calcn diesel **fuel** consumption
IT Smoke
(formation of, in diesel **fuel** combustion, prediction of, by statistical clustering and regression anal. of **fuel** properties)
IT **Fuels**, diesel
(properties of, statistical regression and clustering anal. of, for prediction of **fuel** consumption and smoke **emissions**)
IT Statistics and Statistical analysis
(cluster, of diesel **fuel** properties, for prediction of **fuel** consumption and smoke **emissions**)
IT Statistics and Statistical analysis
(regression, of diesel **fuel** properties, for prediction of **fuel** consumption and smoke **emissions**)

M. Medley 09/226,409

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L1  (     184367)SEA FILE=WPIDS ABB=ON  PLU=ON  GASOLINE# OR FUEL#
L2  (     214976)SEA FILE=WPIDS ABB=ON  PLU=ON  PETROLEUM OR L1
L4            52 SEA FILE=WPIDS T50
L7             2 SEA FILE=WPIDS L2 AND L4
L11           26 SEA FILE=WPIDS (50% OR 50) (2A) (DISTILL?)(2A)(TEMP?)
L12           25 SEA FILE=WPIDS L11 NOT L7
L13           33 SEA FILE=APILIT (50% OR 50) (2A) (DISTILL? OR TRANSIT?)(2A)TEMP
                 ?
L15        30317 SEA FILE=APILIT (MOTOR FUEL#)/CC
L16       210405 SEA FILE=APILIT COMPOSITION/CT
L19        46509 SEA FILE=APILIT (MOTOR GASOLINE#)/CT OR (MOTOR FUEL#)/CT
L20           29 SEA FILE=APILIT L19 AND L13
L21        12851 SEA FILE=APILIT L15 AND L16
L22           25 SEA FILE=APILIT L20 AND L21
L23 (         25)SEA FILE=APILIT ABB=ON  PLU=ON  'T(SUB)5(SUB)0'
L24           25 SEA FILE=APILIT ABB=ON  PLU=ON  L23 AND (FUEL# OR GAS?)
L25           19 SEA FILE=APILIT L22 NOT L24
L26           12 SEA FILE=APIPAT L20 AND L21
L27           45 DUP REM L12 L25 L26 (11 DUPLICATES REMOVED)
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L27 ANSWER 1 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 1
AN 1999-148823 [13] WPIDS
DNC C1999-044181
TI Environmentally friendly diesel oil composition - includes paraffin composition having specified distillation temperature and straight chain compound content.
DC E19 H06
PA (SHEL) SHOWA SHELL SEKIYU KK
CYC 1
PI JP 11012581 A 19990119 (199913)* 9p C10L001-16
ADT JP 11012581 A JP 1997-180538 19970620
PRAI JP 1997-180538 19970620
IC ICM C10L001-16
ICS C10L001-18; C10L001-20; C10L001-22; C10L010-02
AB JP 11012581 A UPAB: 19990331
A diesel oil composition includes (A) a paraffin composition composed of 8 - 25 C paraffin compound, having 150 - 300 deg. C **50** % **distillation temp.**, and more than 60 wt. % content of straight-chained compound, and not including S; and (B) a polar group-containing lubricating agent.
USE - Effectively used in a car.
ADVANTAGE - An amount of NOx in the exhaust gas exhausted from a diesel engine, can be reduced, and the generation of the particulate as one of the sources of floating fine particles can be inhibited.
Dwg.0/2
FS CPI
FA AB; DCN
MC CPI: E10-B04; E10-C04; E10-D03; E10-G02; E11-Q02; E31-H02; H06-B04

L27 ANSWER 2 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1999-199167 [17] WPIDS
DNN N1999-147105 DNC C1999-058360
TI Hydrocarbon-based lubricant base oil - formed by distilling crude oil, hydrogeneration purifying, obtaining distillate and hydrogeneration dewaxing.
DC H07 H08 X12
PA (IDEK) IDEMITSU KOSAN CO LTD
CYC 1
PI JP 11043679 A 19990216 (199917)* 6p C10G065-04
ADT JP 11043679 A JP 1997-346170 19971216
PRAI JP 1997-136616 19970527
IC ICM C10G065-04
ICS C10G045-08; C10G045-64; C10M101-02; H01B003-20; H01B003-22
ICI C10N020:00, C10N020:02, C10N040:16, C10N070:00
AB JP 11043679 A UPAB: 19990503
Hydrocarbon-based lubricant base oil has boiling point at ordinary pressure is in a range of 240 to 470 degrees centigrade, the **50** vol.% **distilling temperature** is in a range of 310 to 350 degrees centigrade. The dynamic viscosity at 40 degrees centigrade is in a range of 6 to 11 mm2/s. The flowing point is not more than -5 degrees centigrade. The content of sulfur is 0.10 wt.%. The content of a multi-ring aromatic component is less than 3 wt%. Also claimed is production of the above lubricant base oil includes obtaining a distillate having a boiling point of 120 to 500 degrees centigrade and a **50** vol.% **distilling temperature** of not more than 330 degrees centigrade by distilling a crude oil at ordinary pressure,

hydrogeneration purifying the distillate to a sulfur content of not more than 0.05 wt%, obtaining a distillate having a boiling point in a range of not less than 260 degrees centigrade by reduced pressure distillation, and then hydrogeneration dewaxing the distillate.

USE - The hydrocarbon-based lubricant base oil is used as a base oil in an electric insulating oil composition.

ADVANTAGE - The hydrocarbon-based lubricant base oil can be produced at a low cost and a high productivity.

Dwg.0/0

FS CPI EPI
FA AB
MC CPI: H07-A
EPI: X12-E02A

L27 ANSWER 3 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-381410 [33] WPIDS
DNC C1998-116046
TI Diesel fuel with vegetable oil content for diesel engine - contains ester(s) of fatty acids in specific proportion, etc., excluding particulate matter.
DC E17 H06
PA (KYOS-N) KYOSEKI SEIHIN GIJUTSU KENKYUSHO KK
CYC 1
PI JP 10152687 A 19980609 (199833)* 7p C10L001-18
ADT JP 10152687 A JP 1996-310840 19961121
PRAI JP 1996-310840 19961121
IC ICM C10L001-18
ICS C10L001-08
AB JP 10152687 A UPAB: 19980819
The fuel consists of a mineral oil whose **50%** **distillation temperature** ranges from 220-260degC. To 100 parts by volume of mineral oil, 10-100 parts by volume of vegetable oil is added. The resulting mixture has dynamic viscosities ranging from 2- 5mm2/s at 30degC and cetane number 51-57.

USE - The fuel is used for diesel engine.

ADVANTAGE - The fuel excludes particulate matter.

Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: E10-G02G2; E10-G02H2; H06-B04

L27 ANSWER 4 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-175315 [16] WPIDS
DNN N1998-139414 DNC C1998-056565
TI Cleaner composition regeneration - by distillation of hydrocarbon solvent and terpene(s) type solvents, at specific temperature.
DC E15 E17 G04 M12 V04
PA (NIHA) JAPAN ENERGY CORP
CYC 1
PI JP 10036893 A 19980210 (199816)* 9p C11D007-50
ADT JP 10036893 A JP 1996-194697 19960724
PRAI JP 1996-194697 19960724
IC ICM C11D007-50
ICA C09K015-08; C09K015-10; C09K015-18; C09K015-32
AB JP 10036893 A UPAB: 19980421
The cleaner compsn. contains both (a)a hydrocarbon solvent of, practically, a single 9-15C n-paraffin or a mixt. of, practically, two kind of above n-paraffins with the difference of C-numbers of 1, and (b)one or more of terpene type solvent(s) with a **50** % **distilling temp.** of plus or minus 10 deg. C of that of above hydrocarbon solvent. Also claimed is the regeneration of the compsn. by distilling at plus or minus 25 deg. C of the **50** % **distilling temp.** of the compsn..

USE - For the cleaning of machine oils, waxes, greases or fluxes on the assembling or processing of electric, electronic or precise machine

parts.
ADVANTAGE - The compsn. shows the good cleaning of rosin type fluxes and mineral type processing oils and the efficient regeneration by distillation and is produced in quantity cheaply.
Dwg.0/0

FS CPI EPI
FA AB; DCN
MC CPI: E10-J02A2; E10-J02D; G04-B08; M12-A03
EPI: V04-X01D

L27 ANSWER 5 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 2
AN 1997-267890 [24] WPIDS
DNC C1997-086321
TI Petrol for low pollution engines - has specified octane value and contains specified aromatic hydrocarbon content, and a distillate.
DC H06
PA (KYOS-N) KYOSEKI SEIHIN GIJUTSU KENKYUSHO KK
CYC 1
PI JP 09095688 A 19970408 (199724)* 8p C10L001-06
ADT JP 09095688 A JP 1996-190812 19960719
PRAI JP 1995-185366 19950721
IC ICM C10L001-06
ICS C10L001-18
AB JP 09095688 A UPAB: 19970612
A petrol having an octane value of at least 98, contains up to 35 volume % of aromatic hydrocarbon, up to 10 volume % of 8+C aromatic hydrocarbons and a **distillate** having a **50% distillation temperature** at 75-95 deg. C and a 97% distillation temperature of up to 155 deg. C.
USE - The fuel is used in low-pollution petrol engines.
Dwg.0/0

FS CPI
FA AB
MC CPI: H06-B01

L27 ANSWER 6 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1997-389550 [36] WPIDS
DNC C1997-125291
TI Cleaner used to remove fats and oils, etc. - comprises hydrocarbon solvent and organic compound having polar groups e.g. ketone..
DC D25 E19
PA (NIHA) JAPAN ENERGY CORP
CYC 1
PI JP 09169997 A 19970630 (199736)* 9p C11D007-50
ADT JP 09169997 A JP 1995-332039 19951220
PRAI JP 1995-332039 19951220
IC ICM C11D007-50
ICS C11D007-24
AB JP 09169997 A UPAB: 19970909
Cleaner comprises (A) a hydrocarbon solvent comprising at least 1 of 5-20C hydrocarbons of the same number of carbon atoms or at least 2 of 5-20C hydrocarbons of different numbers of carbon atoms and (B) at least 1 organic compound having polar group(s) and a b.pt. of **50%-distillation temperature** based on normal pressure, of (A) + or - 25 degrees C.
Also claimed is distillation recovery of the cleaner comprising recovering the cleaner by distilling the cleaner of **50%-distillation temperature** of (A) + or - 25 degrees. C.
Preferably the hydrocarbons are 5-16 n-paraffins, or 6-20C isoparaffins and/or alicyclic hydrocarbons. The organic compounds having polar group(s) are 4-20C alcohols, ketones, ethers and/or esters.
USE - The cleaner is used to remove fats and oils, machine oils, greases and fluxes from electrical, electronic and machine parts.
ADVANTAGE - The cleaner has high cleaning power, undergoes little

variation of composition throughout recovery, permits stable use over a long period and is easy to recover without environmental pollution.
Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: D11-B16; D11-D01B; E10-E04L; E10-F02C; E10-G02H2; E10-H01E

L27 ANSWER 7 OF 45 APIPAT COPYRIGHT 1999 DERWENT/ELSEVIER
AN 1998:1415 APIPAT;APIPAT2
DN 9820652
TI Composition of lead-free petrol - comprises polyether amine-containing cleaner, has specific octane value and satisfies expressions relating content of aromatic hydrocarbon and distillation temperature
PA IDEMITSU KOSAN CO LTD
PI JP 9286992 19971104
AI JP 1997-4591 19970114
PRAI JP 1996-33751 19960221
FI JP 9286992 19971104
OS DERWENT 98028196
AB A composition of lead-free petrol contains a polyether amine-containing cleaner in an amount of at least 70 wt. ppm, has an octane value of at least 89 and satisfies expressions T50 + T70 + 1.5 x T90 at most 415 (I); T50 + T70 + 1.5 x T90 at most -10 x V + 665 (II); and T50 + T70 + 1.5 x T90 at most 465 (III). In (I), (II) and (III), V = the content (vol.%) of aromatic hydrocarbon; T50 = **50** vol.% **distillation temp.** (deg. C); T70 = 70 vol.% distillation temp. (deg. C); and T90 = 90 vol.% distillation temp. (deg. C). USE - For petrol engines. (11pp Dwg.No.0/0)
IC C10L001-06; C10L001-22
CC **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT ADDITIVE; AROMATIC; BOILING POINT; **COMPOSITION**; COMPOUNDS; CONCENTRATION; DETERGENT ADDITIVE; ENGINE; EQUATION; ETHER; FUEL PERFORMANCE; INTERNAL COMBUSTION ENGINE; MATHEMATICS; MODIFIED HOMOPOLYMER; MONOAMINE; ***MOTOR FUEL**; ***MOTOR GASOLINE**; MULTIAMINE; OCTANE NUMBER; PHYSICAL PROPERTY; POLYETHER; SPARK IGNITION ENGINE; TRANSITION TEMPERATURE; *UNLEADED GASOLINE
LT ADDITIVE; COMPOUNDS; DETERGENT ADDITIVE; ETHER; MODIFIED HOMOPOLYMER; MONOAMINE; MULTIAMINE; POLYETHER
ATM Template not available

L27 ANSWER 8 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 97:6235 APILIT;APILIT2
DN 4402762
TI An evaluation of properties for California reformulated gasoline
AU Bevan A R; Brasil T R; Guthrie J J
CS CARB
SO ACS 213th National Meeting (San Francisco 4/13-17/97) ACS Division of Fuel Chemistry Preprints V42 N.2 586-90 (1997) ISSN: 0569-3772
DT Conference
LA English
AB An evaluation of properties for California reformulated gasoline. California began to use a cleaner-burning reformulated gasoline in March 1996. The California reformulated gasoline regulations limit eight properties, with the flexibility given to refineries to average properties or to use a predictive model to blend gasolines having equivalent emission benefits. Data were collected from refineries, compliance fuel sample monitoring, and the California Energy Commission. These data were used to compile a portrait of California reformulated gasoline's average properties and the range of properties. The properties evaluated included sulfur, aromatic hydrocarbons, benzene, olefins, and oxygen contents, **distillation temperatures** at **50** and 90 vol %, and Rvp. As to fuel economy, the mean energy density was 3.5% lower for reformulated than for ordinary gasoline. This evaluation confirmed CARB's preregulation analysis on emission performance and fuel economy of

reformulated gasoline. Tables and references.

CC AIR POLLUTION SOURCES; CHEMICAL PRODUCTS; FUEL REFORMULATION; HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; **MOTOR FUELS**; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 71-43-2; ACS; *AIR POLLUTANT; AROMATIC HYDROCARBON; ASSOCIATION; BENZENE; BENZENE RING; C6; CALIFORNIA; **COMPOSITION**; COMPOUNDS; *CONSERVATION; DISTILLATION; DISTRICT 5; *ECONOMIC FACTOR; *ENERGY CONSERVATION; *EXHAUST GAS; GROUP VIA; HYDROCARBON; IMPURITY; INDUSTRIAL PLANT; *LEGAL CONSIDERATION; MATHEMATICAL MODEL; MEETING PAPER; MIXTURE; MODEL; MONITORING; ***MOTOR FUEL**; ***MOTOR GASOLINE**; NORTH AMERICA; OIL REFINERY; OLEFIN; OXYGEN CONTENT; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *POLLUTANT; *PREDICTION; *REFORMULATED GASOLINE; REID VAPOR PRESSURE; SAMPLING; SINGLE STRUCTURE TYPE; SULFUR; THERMODYNAMIC PROPERTY; UNSATURATED; USA; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL

LT MATHEMATICAL MODEL; MODEL; PREDICTION

LT COMPOUNDS; GROUP VIA; IMPURITY; SULFUR

LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON; IMPURITY

LT 71-43-2; BENZENE; BENZENE RING; C6; HYDROCARBON; IMPURITY; SINGLE STRUCTURE TYPE

LT COMPOUNDS; HYDROCARBON; IMPURITY; OLEFIN; UNSATURATED

ATM Template not available

L27 ANSWER 9 OF 45 APILIT COPYRIGHT 1999 ELSEVIER

AN 97:9765 APILIT;APILIT2

DN 4404196

TI California's cleaner-burning gasoline regulations

AU Scheible M H

CS CARB

SO ACS 213th National Meeting (San Francisco 4/13-17/97) ACS Division of Environmental Chemistry Preprints V37 N.1 368-69 (1997) ISSN: 0093-3066

DT Conference

LA English

AB California's cleaner-burning gasoline regulations. Since the spring of 1996, all gasoline for motor vehicles on-road and off-road in California must meet standards in CARB's "Cleaner-Burning Gasoline" regulations. These regulations contain limits of Rvp, sulfur, benzene, aromatic, olefinic, and oxygen contents, and the **50**% and 90% **distillation temperatures**. These properties affect emissions of criteria pollutants (or their precursors) and toxic emissions. Since June 1996, "cap limits" on the properties have been enforced at all levels of gasoline distribution, from the producer's gate to the point of delivery of the vehicle. Also, since March 1996, more stringent standards, the "flat" and "averaging" limits, have been enforced for gasoline leaving the producer (refiner or importer). Under the default limits, oxygen must be present in every gallon of gasoline, 1.8-2.2 wt %. By modeling, a producer can set a lower range or a range of .ltoreq. 2.7 wt %. Any oxygenate approved by EPA may be used. MTBE has been by far the most common oxygenate, with some amyl ether and ETBE also used. Tables.

CC AIR POLLUTION CONTROL; CHEMICAL PRODUCTS; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; **MOTOR FUELS**; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 1634-04-4; 637-92-3; ACS; ADDITIVE; *AIR POLLUTANT; AROMATIC; ASSOCIATION; *AUTOMOTIVE EXHAUST GAS; BENZENE CONTENT; BOILING POINT; BRANCHED CHAIN; BUSINESS OPERATION; C10; C5; C6; *CALIFORNIA; CLEAN BURNING; **COMPOSITION**; COMPOUNDS; CONCENTRATION; DEGREE OF UNSATURATION; DISTILLATION RANGE; *DISTRICT 5; *ECONOMIC FACTOR; ENVIRONMENTAL PROTECTION; ETHER; ETHER CONTENT; ETHYL TERT-BUTYL ETHER; *EXHAUST GAS; FUEL PERFORMANCE; HEALTH/DISEASE; *LEGAL CONSIDERATION; MARKETING; MEETING PAPER; ***MOTOR FUEL**; ***MOTOR GASOLINE**; MOTOR VEHICLE; *NORTH AMERICA; OCTANE BOOSTER; OXYGEN CONTENT; PHYSICAL PROPERTY; *POLLUTANT; *REFORMULATED GASOLINE; REID VAPOR PRESSURE; ROAD; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SULFUR CONTENT; TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; TOXIC EFFECT; TRANSITION TEMPERATURE; US

ENVIRONMENTAL PROTECTION AGCY; *USA; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER
LT 637-92-3; ADDITIVE; BRANCHED CHAIN; C6; ETHER; ETHYL TERT-BUTYL ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE
LT ADDITIVE; C10; COMPOUNDS; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE
ATM Template not available

L27 ANSWER 10 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 97:14131 APILIT;APILIT2
DN 4406525
TI [The feasibility of] controlling physico-chemical properties of petroleum distillates by using additives and laser irradiation
AU Frolova T S
SO State Academy of Oil & Gas, Moscow, Dissertation (5/14/96) (Abstract) Khimiya i Tekhnologiya Topliv i Masel N.3 55 (1997) ISSN: 0023-1169
DT Abstract; Dissertation
LA Russian
AB [The feasibility of] controlling physico-chemical properties of petroleum distillates by using additives and laser irradiation was demonstrated. Thus, adding 10 wt % of diethanolamine caprylate to a diesel fuel distillate lowered its initial boiling point by 25.degree.C and its **50% distillation temperature**, by 20.degree.C.
This additive was thus recommended for use to produce Grade A diesel fuel starting from Grade Z fuel. In addition, changes in chemical class composition of fuel and lubricating oil fractions were observed as a result of low-temperature cracking reactions induced by laser irradiation. The latter reduced the concentration of PAH by 30% and of resins, by > 50% in diesel fuel fractions, and by 20 and 11-33%, respectively, in lubricating oil fractions. A method was developed, and optimal operating parameters were identified, for improving the product or feedstock properties of fuel and lubricating oil fractions by laser treatment. Using diesel fuels subjected to this treatment resulted in increased engine power output, improved fuel economy, and reduced engine wear and soot emissions. A synergistic effect of additives and laser treatment on the fractional composition of fuels was also observed.
CC LUBRICANTS AND INDUSTRIAL OILS; **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; TRIBOLOGY
CT ABSTRACT; ADDITIVE; AIR POLLUTANT; AROMATIC HYDROCARBON; BENZENE RING; BOILING POINT; C12; CARBON DEPOSIT; *CARBOXAMIDE; **COMPOSITION**; COMPOUNDS; COMPRESSION IGNITION ENGINE; CONCENTRATION; CONTROL; DIESEL ENGINE; *DIESEL FUEL; DISTILLATION RANGE; ENGINE; ENGINE PERFORMANCE; ENGINE STARTING; FUEL CONSUMPTION; FUSED OR BRIDGED RING; HYDROCARBON; INITIAL BOILING POINT; INTERNAL COMBUSTION ENGINE; *LASER; LOW TEMPERATURE; *LUBRICANT/INDUSTRIAL OIL; *MASER; ***MOTOR FUEL**; MULTIHYDROXY; OPERATING CONDITION; *PETROLEUM DISTILLATE; *PETROLEUM FRACTION; PHYSICAL PROPERTY; POLLUTANT; POLYNUCLEAR AROMATIC HYDROCARBON; POWER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SOOT; STRAIGHT CHAIN; SYNERGISM; TEMPERATURE; TEMPERATURE 20 TO 40 C; THESIS; TRANSITION TEMPERATURE; WASTE DEPOSIT; WASTE MATERIAL; WEAR
LT ADDITIVE; C12; CARBOXAMIDE; MULTIHYDROXY; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; SYNERGISM
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; FUSED OR BRIDGED RING; HYDROCARBON; POLYNUCLEAR AROMATIC HYDROCARBON
LT AIR POLLUTANT; CARBON DEPOSIT; POLLUTANT; SOOT; WASTE DEPOSIT; WASTE MATERIAL
ATM Template not available

L27 ANSWER 11 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 3
AN 1995-290686 [38] WPIDS
DNC C1995-130905
TI Gasoline compsn., having stable combustibility at high-speed revolution -

contg. short chain hydrocarbons is used as fuel oil for high speed racing
engines..
DC H06
PA (TOFU) TONEN CORP
CYC 1
PI JP 07188678 A 19950725 (199538)* 4p C10L001-06
ADT JP 07188678 A JP 1993-348633 19931227
PRAI JP 1993-348633 19931227
IC ICM C10L001-06
ICS C10L001-02; C10L001-16; C10L001-18
AB JP 07188678 A UPAB: 19950927
New gasoline compsn. has a **50% distilled temp**
. of 40-70 deg.C, a Reid vapour pressure of 0.500-0.820 kg/cm2, a density
of 0.680-0.740 g/cm3 and contains 90 vol. %, w.r.t. the total content of
hydrocarbons, of 5-8 C hydrocarbons.
Also claimed is a gasoline compsn. having the **50%-**
distilled temp., vapour pressure and density and
containing 90 vol. % of the 5-8 C hydrocarbon portion and 3-30 vol. % of
an oxygen-contg. cpd(s).
USE - The compsns. are used as a fuel oil for high-speed racing
engines.
ADVANTAGE - The compsns. have good evapn. properties, mix well with
air and have stable combustibility at high-speed revolutions.
Dwg.0/0
FS CPI
FA AB
MC CPI: H06-B01

L27 ANSWER 12 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE
4
AN 1995-281181 [37] WPIDS
DNC C1995-126969
TI Fuel oil compsn. for internal engines effectively controlling smoking of
ignition plug - consisting of hydrocarbon oil contg. aromatic ingredients
and having specified octane number.
DC H06
PA (MAZN) COSMO OIL CO LTD; (COSM-N) COSMO SOGO KENKYUSHO KK
CYC 1
PI JP 07179868 A 19950718 (199537)* 7p C10L001-04
ADT JP 07179868 A JP 1993-345809 19931224
PRAI JP 1993-345809 19931224
IC ICM C10L001-04
AB JP 07179868 A UPAB: 19950921
New fuel oil compsn. for internal engines consists of a hydrocarbon oil
contg. 20-50 vol.% aromatic ingredients, with 40-100 vol.% of the aromatic
ingredients being the 8-9C portion, having a Research octane number of at
least 96 and distillation characteristics of a b.pt. range corresp. to
that of gasoline and a **50% distilled temp.**
of up to 105 deg.C..
ADVANTAGE - The compsn. is easy to formulate, prevents smoking of the
ignition plug effectively and has good accelerating, starting and running
performance.
The compsn. has a b.pt. range of 30-190 deg.C.. The total aromatic
content is 30-45 vol.%, with a content of the 8-9C portion of 80-100
vol.%. Available 8-9C aromatic hydrocarbons include o-, m- and p-xylene,
ethylbenzene, isopropylbenzene, n-propylbenzene, 1,2,3-trimethyl benzene,
1,2,4-trimethylbenzene and methylbenzene. Available base materials for the
compsn. include catalytically reformed and cracked gasoline and alkylates,
opt. used with naphtha, light naphtha, isopentane, isooctane, xylene
and/or ethylbenzene.
Dwg.0/0
FS CPI
FA AB
MC CPI: H06-B

L27 ANSWER 13 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 95:18532 APILIT;APILIT2
DN 4207241
TI Relationship between MTBE-blended gasoline properties and warm-up driveability
AU Suzawa T; Fujisawa N; Yamaguchi K; Kashiwabara K; Matsubara M
CS Mitsubishi Motors Corp; Mitsubishi Oil Co Ltd
SO *SAE Fuels & Lubricants Meeting (Toronto 10/16-19/95) SAE Special* Publication N.SP-1118 91-95 (1995)
DT Conference
LA English
AB Relationship between MTBE-blended gasoline properties and warm-up driveability. The peak value of the transient combustion air-fuel ratio in a bench engine was measured using an air-fuel ratio meter installed in the exhaust manifold. The water was maintained at 35.degree.C to simulate engine warm-up. Although the warm-up driveability of MTBE-free gasoline had a high correlation with the **50% distillation temperature** (T50) and with the 100.degree.C distillation volume, the correlation was low with MTBE/gasoline. Using the formula which gave the highest determination coefficient for MTBE/gasoline blends, it was shown that heavy reformate containing large amounts of aromatics or MTBE worsens the driveability. The formulation (percentages of light catalytic cracked, catalytic cracked, and light straight run gasolines) of the gasoline has to be taken into account. Tables and graphs. (SAE Paper #952519).
CC CHEMICAL PRODUCTS; FUEL REFORMULATION; **MOTOR FUELS**; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 1634-04-4; *ADDITIVE; AIR FUEL RATIO; AROMATIC; AROMATIZATION; ASSOCIATION; BOILING POINT; BRANCHED CHAIN; C5; CATALYTIC CRACKING; CATALYTIC REFORMING; COMBUSTION; **COMPOSITION**; CONCENTRATION; DISTILLATION RANGE; *DRIVEABILITY; ENGINE OPERATING CONDITION; *ENGINE PERFORMANCE; ENGINE TEST; EQUATION; ETHER; ETHER CONTENT; EXHAUST MANIFOLD; GASOLINE STOCK; LABORATORY SCALE; LIGHT NAPHTHA; MANIFOLD; MATERIALS TESTING; MATHEMATICS; MEETING PAPER; MITSUBISHI OIL; MIXTURE; MONITORING; ***MOTOR FUEL**; ***MOTOR GASOLINE**; MTBE CONTENT; NAPHTHA; *OCTANE BOOSTER; OPERATING CONDITION; PETROLEUM DISTILLATE; PETROLEUM FRACTION; PHYSICAL PROPERTY; PRIOR TREATMENT; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT RUN PRODUCT; TEMPERATURE; TEMPERATURE 20 TO 40 C; TEMPERATURE 80 TO 125 C; TERT-BUTYL METHYL ETHER; TRANSITION TEMPERATURE; UNSTEADY STATE; *USE; *WARMUP
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
LT AROMATIZATION; CATALYTIC CRACKING; CATALYTIC REFORMING; PRIOR TREATMENT
LT LIGHT NAPHTHA; NAPHTHA; PETROLEUM DISTILLATE; PETROLEUM FRACTION; STRAIGHT RUN PRODUCT
ATM Template not available

L27 ANSWER 14 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 5
AN 1994-260789 [32] WPIDS
DNC C1994-119404
TI Composite gasoline with reduced photochemical reactivity of exhaust gas - due to lower ozone index and contg. blend of base gasolines.
DC H06
PA (TOFU) TONEN CORP
CYC 1
PI JP 06192664 A 19940712 (199432)* 10p C10L001-04
ADT JP 06192664 A JP 1992-359161 19921225
PRAI JP 1992-359161 19921225
IC ICM C10L001-04
AB JP 06192664 A UPAB: 19940928
The gasoline has a fuel ozone index of formula sum of (CiMiKi) (I) of up to 1.5 where Ci is concn. in wt.% of i-th aromatic component contg. at least 2 substits. and MiRi is an incremental reactivity of i-th aromatic component contg. at least 2 substits.

The base gasoline is alkylate, catalytically cracked gasoline, light naphtha, toluene, reformed gasoline or methyl-tert-butyl ether and their ozone indexes are calculated by sepg., identifying and assaying their components by gas chromatography and calculating from formula (I). Such base oils are blended to achieve the required ozone index in view of the requirement such that density is up to 0.783 g/cm3, RON is at least 89.0, MON is at least 80.0 and **50% distilling temp**
. is up to 125 deg.C. The composite gasoline is opt. blended with an antiknocking agent, surface ignition inhibitor, antioxidant, metal deactivator, freezing inhibitor, corrosion inhibitor, antibacterial agent, antistatic agent, lubrication improver and colourant.

ADVANTAGE - A lower ozone index of the fuel reduces the photochemical reactivity of the exhaust gas from a car and is a pref. countermeasure for photochemical smog.

Dwg.0/0

FS CPI
FA AB; GI
MC CPI: H06-B01

L27 ANSWER 15 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 6
AN 1993-217115 [27] WPIDS
DNC C1993-096724
TI Light oil compsn., having good low-temp. fluidity - consists of a light oil fraction and catalytically cracked light oil, and avoids blinding of the filter.
DC H04 H06
PA (TOFU) TONEN CORP
CYC 1
PI JP 05140567 A 19930608 (199327)* 4p C10G011-18
ADT JP 05140567 A JP 1991-158099 19910628
PRAI JP 1990-172045 19900629
IC ICM C10G011-18
ICS C10G007-00; C10L001-04
AB JP 05140567 A UPAB: 19931116

Compsn. consists of 70-90 vol.% of a light oil fraction obtd. by distn. of crude oil at ordinary pressure and having a 90% distilling temps. of 60-100 deg.C and 10-30 vol.% of a catalytically cracked light oil obtd. by fluid catalytic cracking of the heavy oil fraction prepd. by distn. of crude oil at ordinary pressure and having a 90% distilling temp. of 200-270 deg.C and a difference between the 20% and 90% distilling temps. of 30-90 deg.C and has a cetane index of at least **50**, a 90% **distilling temp**. of 310-330 deg.C and a difference between the 20% and 90% distilling temps. of 70-85 deg.C.

USE/ADVANTAGE - The compsn. well avoids blinding of the filter without a fluidity improver and has improved low-temp. fluidity, a high Saybolt colour and high combustibility.

In an example, a prepd. sample had a viscosity at 30 deg.C of 3.2 mm2/s, a Saybolt colour of +15, a fluid pt. of -15.0 deg.C, a blinding pt. of -12 deg.C, a cloud pt. of -10 deg.C and a cetane index of 53.

Dwg.0/0

FS CPI
FA AB
MC CPI: H07-A

L27 ANSWER 16 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1993-261919 [33] WPIDS
DNC C1993-116852
TI Oxidn.-resistant solvent useful as reaction medium in prepn. of copper phthalocyanine - consists of hydrocarbon mixed fraction sepd. through distn. and based on ingredients of specified boiling points.
DC E18 E23 H08
PA (NIPE) NIPPON PETROCHEMICALS CO LTD
CYC 1
PI JP 05179257 A 19930720 (199333)* 6p C10G007-00

ADT JP 05179257 A JP 1991-361351 19911227
PRAI JP 1991-361351 19911227
IC ICM C10G007-00
ICS C09B047-06
AB JP 05179257 A UPAB: 19931119
A new oxidn.-resistant solvent consists of a hydrocarbon mixed fraction sepd. through distn. and based on ingredients of b.pt. of 200-230 deg.C and has an average b.pt. of 200-220 deg.C, a b.pt. range of 30 deg.C, an index of (n20 + D20 - 2)/(Bp + 273) of 7.0 x 10 power(-4) to 7.6 x 10 power(-4) and a max. absorption wavelength, lambda(max) of 650-2000 cm(-1) of the IR absorption spectrum of 690-710 cm(-1). In equation, n20 is refractive index at 20 deg.C; D20 is density at 20 deg.C, g/cc; Bp is average b.pt., deg.C) is (10% distilled **temp.** + 2 x **50 % distilled temp.** + 90% distilled temp.)/4, by distn. test.

A new prepn. of Cu phthalocyanine, in which phthalic acid anhydride, phthalonitrile and/or their deriv(s). is reacted with heating with Cu (salt(s)) in a reaction medium, uses the solvent as the reaction medium.

USE/ADVANTAGE - The solvent has high oxidn. resistance and is esp. useful for the prepn. of Cu phthalocyanine.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: E23-B; H08-D03

L27 ANSWER 17 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1993-261918 [33] WPIDS
DNC C1993-116851
TI Oxidn.-resistant solvent useful as reaction medium for prepn. of copper phthalocyanine - consists of fraction obtd. by distilling by-product produced from detergent alkyl benzene(s) prepn., etc..
DC E18 E23 H08
PA (NIPE) NIPPON PETROCHEMICALS CO LTD
CYC 1
PI JP 05179256 A 19930720 (199333)* 6p C10G007-00
ADT JP 05179256 A JP 1991-361350 19911227
PRAI JP 1991-361350 19911227
IC ICM C10G007-00
ICS C09B047-06
AB JP 05179256 A UPAB: 19931119
A new oxidn.-resistant solvent consists of the fraction based on the ingredients of b.pt. of 200-230 deg.C obtd. by distilling the by-prod. produced in the prepn. of detergent alkyl benzenes by reacting benzene with branched olefins consisting of 9-24C olefins of an average b.pt. of 210-250 deg.C in the presence of a strongly acidic catalyst and contg. at least 25% of the 15-18C portion and having an average b.pt. of 200-220 deg.C and a b.pt. range of 30 deg.C.

The fraction has an index of (n20 + D20 - 2)/(Bp + 273) of 7.00 to 7.63 x 10 power(4). In equation n20 is refractive index at 20 deg.C; D20 is density at 20 deg.C, g/cc; Bp (average b.pt.; deg.C) is (10% distilled **temp.** + 2 x **50% distilled temp.** + 90% distilled temp.)/4, by distn. test).

A new prepn. of Cu phthalocyanine pigment, in which phthalic acid anhydride, phthalonitrile or their deriv(s). is reacted, with heating, with Cu (salt(s)) in a reaction medium, uses the solvent.

USE/ADVANTAGE - The solvent has high oxidn. resistance and stability, being esp. useful as the reaction medium for the prepn. of the pigment.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: E23-B; H08-D03; N06

L27 ANSWER 18 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1993-169529 [21] WPIDS
DNC C1993-075515

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TI   Binder for carbonaceous refractory - comprises pitch with low concn. of
     lower boiling components and organic solvent with controlled b.pt. and
     gives lower malodours and high carbonisation yield.
DC   H09 L02 M24
IN   HASHIGUCHI, M; MIYASAKA, H
PA   (MITU) MITSUBISHI KASEI CORP; (MITU) MITSUBISHI CHEM CORP
CYC  2
PI   GB 2261674     A  19930526 (199321)*       29p    C08L095-00
     JP 05270892    A  19931019 (199346)         7p    C04B035-00
     GB 2261674     B  19950823 (199537)               C08L095-00
ADT  GB 2261674 A GB 1992-21737 19921016; JP 05270892 A JP 1992-276073
     19921014; GB 2261674 B GB 1992-21737 19921016
PRAI JP 1991-271364    19911018; JP 1991-271365    19911018; JP 1991-341498
     19911224; JP 1991-341500    19911224
IC   ICM  C04B035-00; C08L095-00
     ICS  C04B026-00; C08J003-09
AB   GB    2261674 A UPAB: 19931114
     Binder consists of a pitch contg. not more than 10 wt.% of a fraction not
     higher than 300 deg. C and an organic liq. having a b.pt. or 50% distn.
     temp. of not higher than 350 deg. C. The refractory is formed by
     incorporating the binder into an organic and/or carbonaceous aggregate.
          USE/ADVANTAGE - In the mfr. of refractories for e.g. electric
     furnaces or for converters, the binder generates little fume and off-odour
     when calcined using the heat of e.g. a converter and gives a high
     carbonisation yield.
     Dwg.0/2
FS   CPI
FA   AB
MC   CPI: H08-B; L02-E07; M24-A05A

L27  ANSWER 19 OF 45  WPIDS COPYRIGHT 1999   DERWENT INFORMATION LTD
AN   1993-189808 [24]    WPIDS
DNC  C1993-084006
TI   Tetra hydro pyran-4-carboxylate ester(s) purificn. - by multistage distn.
     of bottom prod. in column with addn. of entrainer for pure prod. as side
     stream.
DC   E13
IN   FISCHER, R; GOETZ, N; KUEKENHOEHNER, T; RUST, H; SCHNURR, W
PA   (BADI) BASF AG
CYC  10
PI   EP 546397      A1 19930616 (199324)* DE     8p    C07D309-08
         R: BE CH DE FR GB IT LI NL
     DE 4141221     A1 19930617 (199325)         4p    C07D309-08
     JP 05247024    A  19930924 (199343)         5p    C07D309-08
     US 5414097     A  19950509 (199524)         5p    C07D309-08
     EP 546397      B1 19951011 (199545)  DE     7p    C07D309-08
         R: BE CH DE FR GB IT LI NL
     DE 59203987    G  19951116 (199551)               C07D309-08
ADT  EP 546397 A1 EP 1992-120260 19921127; DE 4141221 A1 DE 1991-4141221
     19911213; JP 05247024 A JP 1992-332830 19921214; US 5414097 A CIP of US
     1992-990285 19921214, US 1994-185179 19940124; EP 546397 B1 EP 1992-120260
     19921127; DE 59203987 G DE 1992-503987 19921127, EP 1992-120260 19921127
FDT  DE 59203987 G Based on EP 546397
PRAI DE 1991-4141221  19911213
REP  EP 284969
IC   ICM  C07D309-08
     ICS  C07D307-33
ICA  C07B061-00
AB   EP     546397 A UPAB: 19931116
     Purificn. comprises distn. from mixts. obtd. from the reaction of
     butyrolactones of formula (II) with alcohols R1OH (III) in the presence of
     oxide catalysts (IV). The purificn. involves (a) removing alcohol and up
     to 10% of the water by distn. in a column (1) with 5-25 theoretical
     plates, with column head pressure and temp. 700-1100 mbar and 50-80deg.C
     respectively, (b) transferring the bottom prod. from (1) to a second
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column (2) with 18-40 theoretical plates, which is operated at head pressure 35-350 mbar and head temp. 18-70deg.C, injecting circulated water-entraining agent (V) at a point between plates 15 and 30, and taking off the prod. tetrahydopyran-4-carboxylate ester (I) from a point between plates 8 and 18 at 90-150degC, and opt. (c) transferring the bottom prod. from (2) to a column (3) with 5-25 theoretical plates, removing the top prod. at 1-100 mbar and 90-140degC and returning it to the synthesis stage.

R1-R3 - 1-4C alkyl; R2 and R3 may also = H; and R4 = H, 1-6C alkyl or -COR2.

USE/ADVANTAGE - Improved process for the prodn. of pure (I) from reaction mixts. contg. (I), (III), unreacted (II), etherated (II), spiro-lactones and high-boiling by-prods. etc.; and azeotropic distn. of water saves an extra distn. stage, since the prod. (I) is taken off as a side stream from the same column.

Dwg.0/1

FS CPI

FA AB; GI; DCN

MC CPI: E07-A02J; E11-Q01; N06

L27 ANSWER 20 OF 45 APILIT

AN 94:4929 APILIT;APILIT2

DN 4102520

TI How heavy hydrocarbons in the fuel affect exhaust mass emissions: Correlation of fuel, engine-out, and tailpipe speciation. The Auto/Oil Air Quality Improvement Research Program

AU Leppard W R; Burns V R; Gorse R A; Hochhauser A M; Knepper J C; Koehl W J; Rapp L A; Reuter R M; Benson J D

CS GM NAO R&D Center; Chrysler Motors Corp; Ford Motor Co; Exxon Research & Engineering Co; Amoco Oil Research & Development; Mobil Research & Development Corp; ARCO Products Co; Texaco Inc

SO SAE 1993 International Fuels & Lubricants Meeting (Philadelphia 10/18-21/93) SAE Special Publication V2 N.SP-1000 207-50 (1993)

DT Conference

LA English

AB How heavy hydrocarbons in the fuel affect exhaust mass emissions: Correlation of fuel, engine-out, and tailpipe speciation. The Auto/Oil Air Quality Improvement Research Program. Species analyses were performed on engine-out and tailpipe hydrocarbon (HC) mass emissions to help understand why fuels with increasing amount of heavy HC constituents produce significantly higher tailpipe HC emissions. Mass and speciated HC emissions were acquired for a fleet of 10 1989 model year vehicles operating on 26 fuels of differing heavy HC composition. These fuels formed two statistically designed matrices: one examining the effects of medium, heavy, and tail reformate and medium and heavy catalytically cracked components; and the other examining the effects of heavy paraffinic vs. heavy aromatic components and the effects of the **50 % distillation temperature**. The fates of fuel species were traced across the engine and across the catalyst, and correlations were developed between engine-out and tailpipe HC species emissions and fuel composition. Engine-out and tailpipe specific ozone reactivities were examined in light of the engine-out and tailpipe speciation, and correlations were developed between these specific reactivities and fuel composition. Graphs, tables, and 27 references. (SAE Paper #932725). See also Abstract No. 41-02519

CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 10028-15-6; ACTIVITY; *AIR POLLUTANT; AIR QUALITY; AMOCO; *AQIRP; AROMATIC; AROMATIZATION; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EXHAUST GAS; BOILING POINT; CATALYST; CATALYTIC CRACKING; CATALYTIC REFORMING; **COMPOSITION**; COMPOUNDS; DATA CORRELATION; DISTILLATION RANGE; *ECONOMIC FACTOR; ELEMENT; *ENGINE TEST; ESSO; EXHAUST GAS; FULL SCALE; GASOLINE STOCK; GROUP VIA; HYDROCARBON; *MATERIALS TESTING; MEETING PAPER; MOBIL OIL; MODEL;

MOTOR FUEL; MOTOR VEHICLE; OXIDANT; OXYGEN; OZONE; PARAFFINIC; PHYSICAL PROPERTY; *POLLUTANT; *POLLUTION CONTROL; PRIOR TREATMENT; SAE; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON; *USE; WASTE GAS; *WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT MODEL; MOTOR VEHICLE

LT AROMATIZATION; CATALYTIC REFORMING; PRIOR TREATMENT

LT 10028-15-6; AIR POLLUTANT; ELEMENT; GROUP VIA; OXIDANT; OXYGEN; OZONE; POLLUTANT; WASTE MATERIAL

ATM Template not available

L27 ANSWER 21 OF 45 APILIT COPYRIGHT 1999 ELSEVIER

AN 94:4928 APILIT;APILIT2

DN 4102519

TI How heavy hydrocarbons in the fuel affect exhaust mass emissions: Modal analysis. The Auto/Oil Air Quality Improvement Research Program

AU Leppard; Burns V R; Gorse R A; Hochhauser A M; Knepper J C; Koehl W J; Rapp L A; Reuter R M; Benson J D

CS GM NAO R&D Center; Chrysler Motors Corp; Ford Motor Co; Exxon Research & Engineering Co; Amoco Oil Research & Development; Mobil Research & Development Corp; ARCO Products Co; Texaco Inc

SO SAE 1993 International Fuels & Lubricants Meeting (Philadelphia 10/18-21/93) SAE Special Publication V2 N.SP-1000 189-205 (1993)

DT Conference

LA English

AB How heavy hydrocarbons in the fuel affect exhaust mass emissions: Modal analysis. The Auto/Oil Air Quality Improvement Research Program. Modal analyses were performed on engine-out and tailpipe hydrocarbon (HC) and CO mass emissions to help understand why fuels with increasing amounts of heavy HC constituents produce significantly higher tailpipe HC emissions, yet do not produce significantly higher tailpipe CO emissions. Mass emissions were acquired for a fleet of 10 1989 model year vehicles operating on 26 fuels of differing heavy HC composition. These fuels formed two statistically designed matrices: one examining the effects of medium, heavy, and tail reformate and medium and heavy catalytically cracked components; and the other examining the effects of heavy paraffinic vs. heavy aromatic components and the effects of the **50 % distillation temperature.** The significantly higher tailpipe HC emissions from fuels with high content of heavy HC result primarily from these fuels producing much higher engine-out HC emissions during the first cycle of the Federal Test Procedure. Tailpipe emissions of CO do not increase significantly with heavy-HC fuels because the engine-out emissions of the first cycle are not abnormally increased. Graphs and tables. (SAE Paper #932724)

CC AIR POLLUTION CONTROL; ENVIRONMENT, TRANSPORT & STORAGE; FUEL REFORMULATION; HEALTH & ENVIRONMENT; **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 12795-06-1; 630-08-0; *AIR POLLUTANT; AIR QUALITY; AMOCO; *AQIRP; AROMATIC; *AROMATIZATION; ASSOCIATION; ATLANTIC RICHFIELD; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EXHAUST GAS; BOILING POINT; CARBON; CARBON MONOXIDE; CARBON OXIDE; CATALYTIC CRACKING; *CATALYTIC REFORMING; **COMPOSITION**; COMPOUNDS; CYCLE; DISTILLATION RANGE; *ECONOMIC FACTOR; ENGINE TEST; ESSO; EXHAUST GAS; FULL SCALE; GASOLINE STOCK; GROUP IVA; GROUP VIA; HYDROCARBON; IDE; MATERIALS TESTING; MEETING PAPER; MOBIL OIL; MODEL; ***MOTOR FUEL**; MOTOR VEHICLE; NATIONAL; OXYGEN; PARAFFINIC; PHYSICAL PROPERTY; *POLLUTANT; *POLLUTION CONTROL; PRIOR TREATMENT; SAE; TAILPIPE; TEXACO; TRANSITION TEMPERATURE; UNBURNED HYDROCARBON; *USE; WASTE GAS; *WASTE MATERIAL

LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; POLLUTANT; UNBURNED HYDROCARBON; WASTE MATERIAL

LT 12795-06-1; 630-08-0; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; POLLUTANT; WASTE MATERIAL

LT MODEL; MOTOR VEHICLE

LT AROMATIZATION; CATALYTIC REFORMING; PRIOR TREATMENT

LT CYCLE; ENGINE TEST; MATERIALS TESTING
ATM Template not available

L27 ANSWER 22 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 93:14802 APILIT;APILIT2
DN 4006824
TI Effect of gasoline composition on engine performance
AU Oda K; Hosono K; Shibata G; Isoda T; Aihara H; Kojima K
CS Nissan Research & Development Inc; Nissan Motor Co Ltd; Nippon Oil Co Ltd
SO SAE International Congress (Detroit 3/1-5/93) SAE Special Publication N.SP-958 77-82 (1993)
DT Conference
LA English
AB Effect of gasoline composition on engine performance. To clarify the effect of each gasoline component on engine performance during warmup, changes in the air/fuel ratio and quantity of wall flow (liquid gasoline on the induction port) were measured using ordinary gasolines and model gasolines consisting of blended hydrocarbons and MTBE. The unburned air/fuel mixture in a combustion chamber was sampled by a solenoid valve and analyzed by GC to study each component's vaporization rate. MTBE had an important effect on driveability because it contained oxygen and easily vaporized, resulting in a lean mixture in the transient state. The popular driveability index, T50 (**50% distillation temperature**) did not provide an adequate means of evaluating MTBE blended gasoline. Heavy aromatics (C(sub)9-plus aromatics) also had a significant effect on driveability because they tended to increase the wall flow quantity and promoted formation of a lean air/fuel mixture. A new driveability index was devised based on the data, T50 plus M/2, (M equals volume percent of MTBE added) for formulating MTBE blended automotive gasoline. Diagram, tables, and graphs. (SAE Paper #930375).
CC CHEMICAL PRODUCTS; **MOTOR FUELS**; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT *1634-04-4; ADDITIVE; AIR; AIR FUEL RATIO; ANALYTICAL METHOD; AROMATIC HYDROCARBON; ASSOCIATION; BENZENE RING; BOILING POINT; *BRANCHED CHAIN; *C5; CHROMATOGRAPHY; COMBUSTION CHAMBER; **COMPOSITION**; COMPOUNDS; DISTILLATION RANGE; *DRIVEABILITY; ELECTRIC CIRCUIT COMPONENT; *ENGINE PERFORMANCE; *ETHER; ETHER CONTENT; FLUID FLOW; GAS CHROMATOGRAPHY; HIGH MOLECULAR WEIGHT; HYDROCARBON; LIQUID; MEETING PAPER; MIXTURE; MODEL; MOLECULAR WEIGHT; ***MOTOR FUEL**; ***MOTOR GASOLINE**; MTBE CONTENT; NIPPON OIL; OCTANE BOOSTER; PHASE CHANGE; PHYSICAL PROPERTY; SAE; *SATURATED CHAIN; *SINGLE STRUCTURE TYPE; SOLENOID; *TERT-BUTYL METHYL ETHER; TRANSITION TEMPERATURE; UNSTEADY STATE; *USE; VALVE; VAPORIZATION; WALL; WARMUP
LT COMPOUNDS; HYDROCARBON
LT MODEL; MOTOR FUEL; MOTOR GASOLINE; USE
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
ATM Template not available

L27 ANSWER 23 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 7
AN 1993-014179 [02] WPIDS
DNC C1993-006747
TI Novel gasoline with high octane number and emitting less nitrogen oxide(s) - contains methyl tert-butyl ether and light naphtha, ether obtd. by reacting isobutylene with methanol.
DC H06
IN KANEKO, T; OMATA, T; OYAMA, K
PA (NIOC) NIPPON OIL KK
CYC 2
PI JP 04342791 A 19921130 (199302)* 4p C10L001-18
US 5256167 A 19931026 (199344) 4p C10L001-18
ADT JP 04342791 A JP 1991-144082 19910521; US 5256167 A US 1992-885463 19920519

PRAI JP 1991-144082 19910521
IC ICM C10L001-18
ICS C10L001-14
AB JP 04342791 A UPAB: 19930924
New gasoline contains 3-10 vol.% methyl tert-butyl ether and 1-15 vol.% light naptha.

The ether is e.g. prepd. by reacting isobutylene with methanol. The blend ratio of the ether is pref. 5-15 vol.%. The naphtha usually has a 10-percent-distillated temp. of 30-40 deg.C and a 90-percent-**distilled temp**. of **50**-65 deg. C and is obtd. by fractionating naphtha fraction from distn. of crude oil under ordinary pressure. The gasoline typically comprises 10-40 vol.% of refined gasoline, 0-30 vol.% of the light fraction of cracked gasoline of a distn. temp. range from the initial boiling pt. to 80 deg. C, 10-40 vol.% of the heavy fraction of refined gasoline of a distn. temp. range from 130-deg. C to the end pt. 0-25 vol.% of alkylates, 1-15 vol.% of light naphtha and 3-30 vol.% of the ether. The gasoline pref. has a research octane number of at least 95, esp. 100 or higher.

ADVANTAGE - The gasoline has a high octane number and reduces NOx in the exhaust gas.
93006747
FS CPI
FA AB
MC CPI: H06-B01

L27 ANSWER 24 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 8
AN 1992-180227 [22] WPIDS
DNC C1992-082584
TI High power gasoline compsn. for car races - has octane number of at least 98 and density of 0.68-0.72 and pref. contains aromatic hydrocarbon(s), light cracked gasoline, etc..
DC H04 H06
PA (KYOS-N) KYOSEKI SEIHIN GIJUTSU KENKYU
CYC 1
PI JP 04117492 A 19920417 (199222)* 6p C10L001-04
JP 07057872 B2 19950621 (199529) 5p C10L001-04
ADT JP 04117492 A JP 1990-235645 19900907; JP 07057872 B2 JP 1990-235645 19900907
FDT JP 07057872 B2 Based on JP 04117492
PRAI JP 1990-235645 19900907
IC ICM C10L001-04
AB JP 04117492 A UPAB: 19931006
Gasoline compsn. of an octane number of at least 98 has a density of 0.68-0.72, a **50**% **distilling temp**. on distn. of 65-90 deg.C and an end pt. of up to 150 deg.C.

The compsn. pref. contains 15-25 vol.% 7-8C aromatic hydrocarbon(s), 40-65 vol.% light cracked gasoline of a b.pt. range of 30-90 deg.C obtd. by distilling the gasoline fraction produced by fluid catalytic cracking and 10-40 vol.% of a satd. aliphatic hydrocarbon(s) of a b.pt. of 90-110 deg.C and an octane number of at least 95.

The 7-8C aromatic hydrocarbons pref. include toluene, xylene and ethyl benzene. The satd. aliphatic hydrocarbons include isooctane, alkylates and alkylate fractions. Additives are opt. added, including antioxidants, cleaning agents, rust-preventing agents, anti-freezing agents and metal-deactivating agents.

USE/ADVANTAGE - The gasoline compsn. gives higher power and is esp. used for car races.
0/0
FS CPI
FA AB
MC CPI: H06-B01

L27 ANSWER 25 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1992-376290 [46] WPIDS

DNC C1992-166935
TI Recovery of isoquinoline and quinaldine - comprises adding 8 carbon alkylphenol(s) except 2,6-xylenol as azeotropic solvent to basic oil, distilling in vacuo to remove solvent and distilling prods..
DC E13 H09
PA (YAWH) NIPPON STEEL CHEM CO
CYC 1
PI JP 04275275 A 19920930 (199246)* 4p C07D215-04
ADT JP 04275275 A JP 1991-62665 19910304
PRAI JP 1991-62665 19910304
IC ICM C07D215-04
ICS C07D217-02
ICA C10C001-08
AB JP 04275275 A UPAB: 19931116
To a coal series basic oil principally composed of isoquinoline, quinaldine and other tar bases obtd. by sepn. from coal tar or coal liquefied oil, 8C alkylphenols (except 2,6-xylenol) were added as azeotropic solvent, and azeotropic mixt. principally composed of isoquinoline and quinaldine was distilled in vacuo, After sepn. of alkylphenols from obtd. azeotropic mixt., isoquinoline and quinaldine were sepd. by distillation and recovered.
USE/ADVANTAGE - High purity and low sulphur content isoquinoline and/or quinaldine are obtd. in good efficiency by removing impurities e.g. 8-methylquinoline thienopyridines, etc. that are commonly difficult to separate from tar series basic oil. In an example, to 100 parts of coal series oil (compsn.: quinoline 7.8%, thienopyridine 0.3%, isoquinoline 27.8%, indole 6.8%, quinaldine 21.5%, 8-methylquinoline 3.2%, 1-methylisoquinoline 1.2%, 6- and 7-methylquinoline 8.6%, 4-methylquinoline 5.3%, other methyl-quinoline and methylisoquinoline 8.3%, dimethylquinoline and dimethylisoquinoline 7.5%, others 1.3%), 50 parts of alkylphenols principally composed of 3,5-xylenol were added, and distilled by packed column type distillation (no. of theoretical plates 80), at 50 Torr, reflux ratio **50**. The **distillation temp**. of azeotropic mixt. of isoquinoline, quinaldine and alkylphenols was 156-159 deg.C, distilled amt. was 60 parts. The compsn. was, isoquinoline 37.1%, quinaldine 24.6%, alkylphenols 38.3% S content 590 ppm. Isoquinoline and quinaldine were then sepd. and recovered by using the appts.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: E06-D02; E06-D03; E11-Q01; H09-A

L27 ANSWER 26 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1992-302104 [37] WPIDS
DNC C1992-134636
TI New water-soluble semicarbazide cpds. contg. aromatic sulphonic acid gps. - are photochemical and heat stabilisers for polyamide fibres and their dyeings.
DC A23 A60 E19 F01
IN KASCHIG, J; METZGER, G; REINERT, G; METZER, G
PA (CIBA) CIBA GEIGY AG; (CIBA) CIBA GEIGY CORP
CYC 18
PI EP 502820 A1 19920909 (199237)* DE 21p C07C309-51
R: AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE
BR 9200695 A 19921110 (199250) C07C303-32
JP 04352761 A 19921207 (199303) 12p C07C309-51
US 5294735 A 19940315 (199411) 8p C07C309-29
EP 502820 B1 19940921 (199436) DE 29p C07C309-51
R: AT BE CH DE DK ES FR GB GR IT LI LU NL PT SE
DE 59200515 G 19941027 (199442) C07C309-51
ES 2061328 T3 19941201 (199504) C07C309-51
ADT EP 502820 A1 EP 1992-810135 19920225; BR 9200695 A BR 1992-695 19920228; JP 04352761 A JP 1992-45855 19920304; US 5294735 A US 1992-839461 19920220; EP 502820 B1 EP 1992-810135 19920225; DE 59200515 G DE

1992-500515 19920225, EP 1992-810135 19920225; ES 2061328 T3 EP
1992-810135 19920225
FDT DE 59200515 G Based on EP 502820; ES 2061328 T3 Based on EP 502820
PRAI CH 1991-637 19910304
REP 2.Jnl.Ref; EP 356287; 02Jnl.Ref
IC ICM C07C303-32; C07C309-29; C07C309-51
ICS C07C303-22; C07C303-38; C07C311-61; C07D295-12; C07D295-22
AB EP 502820 A UPAB: 19931113
New semicarbazides (I) have formula (1). In (I) R1, R2 - H, 1-5C alkyl or alkoxy, 2-5C alkenyl, or Ph, or R1 and R2 with attached N = morpholino or piperazino; p = 0 or 1; when p = 1, Q = divalent gp. of formula (2) where R3 = H, 1-5C alkyl, or halogen; M = H, or alkali (metal); m = 0, 1, 2 or 3; and q = 1; when p = O, Q = monovalent gp. of formula (3) where R4 = H, 1-4C alkyl, halogen, or gp. of formula (3a) and in (3a) R5 = H, 1-5C alkyl, or halogen; A = -NH-, -O-, or -SO2-; q, r = 0 or 1 but are not both 0. USE/ADVANTAGE - Photochemical and thermal stabilisation of polyamide fibre materials and their dyeings (claimed). (I) are water-soln. and have affinity for fibres and can be applied in all conventional dyeing and post-treatment processes, good water-fastness being obtd..

In an example, to soln. of 9.72 g (0.06 mol) (II) in 130 ml dimethylformamide (DMF) at -10 deg. C, was added dropwise soln. of 3.,6 g (0.06 mol) 1,1-dimethyl-hydrazine in 20 ml DMF. After mixt. had been stirred for 15 mins. at -10 deg. C 4.2 g (0.02 mol) Na 1,3-phenylenediamine-4-sulphonate was added in portions and mixt. was stirred for 16 hrs. at room **temp.** DMF was **distilled** off at **50** deg. C/0.13 Pa and residue was boiled up to 300 ml acetone, filtered off, and dried at 100 deg. C/0.13 Pa, Yield, 76% Na 2,4-bis(1,1-dimethylsemicabazido-4-)benzenesuphonate (IV), m.pt. 230-235 (decomp.), of formula (6). 10 g polyamide fabric was dyed at liquor ratio 1:25 using aq. dyebath comprising 0.5 g/l NaH2PO4, 1.5 g/l Na2HPO4, 0.04% mixt. of 81 pts. 1:2 Cr-complex of a mono- and a bis-azo dyestuff and 12 pts. 1:2 Co-complex of a monoazo dyestuff, 0.002% 1:2 Co-complex of another monoazo dyestuff (structural formulae of these complexes given) and 1% (IV). The fabric was added to the bath at 40 deg. C, and bath was kept at that temp. for 10 minutes, heated to 95 deg. at 2 deg. C/minute, held at 95 deg. C for 20 minutes, 2 % acetic acid (80%) was added, fabric was treated for further 25 mins., then bath was cooled to 60 deg. C and fabric was rinsed with cold water, centrifuged and dried at 120 deg. C for 2 minutes. Fabric was irradiated as in DIN 75202 (FAKRA, 216 hours); tear strength and tear extension (SN 198,461) were 63.6 and 70.5%. Corresp. results when no (I) was added to the dye were 15.7 and 33.1%.
0/0
Dwg.0/0
FS CPI
FA AB; GI; DCN
MC CPI: A05-F01B1; A08-A03; A08-A04; A12-S05K; E07-D11; E07-E03; E10-A09B7; F01-D03; F03-C07

L27 ANSWER 27 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:4111 APILIT;APILIT2
DN 3902062
TI Analysis of poor engine response caused by MTBE-blended gasoline from the standpoint of fuel evaporation
AU Ogawa T; Okada M; Araga T; Kato M; Nakada M
CS Toyota Central R&D Laboratories Inc; Toyota Motor Corp
SO SAE International Congress (Detroit 2/24-28/92) SAE Special Publication N.SP-900 159-69 (1992)
DT Conference
LA English
AB Analysis of poor engine response caused by MTBE-blended gasoline from the standpoint of fuel evaporation. Evaporation characteristics of conventional gasolines and MTBE-blended gasolines were studied mostly at room temperature to clarify why the **50% distillation temperature** cannot be used to estimate engine response time for MTBE-blended gasoline without additional information. Experiments showed

that MTBE evaporates in the same manner as C(sub)5 or C(sub)6 chain hydrocarbons in proportion to their boiling points and vapor pressures. Blending MTBE into gasoline increases the amount of fuel evaporated at room temperature. The concentration of MTBE in evaporated fuel is double the MTBE concentration in the liquid fuel. However, the increment of evaporated fuel does not produce an increase in combustion energy to the anticipated extent from blending low boiling point hydrocarbons into the fuel. Namely, the increment of fuel evaporated due to MTBE-blending generates .approx. 80% of the combustion energy expected from C(sub)5 to C(sub)6 hydrocarbon blending. Diagrams, tables, and graphs. (SAE Paper #920800).

CC CHEMICAL PRODUCTS; **MOTOR FUELS;** OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT *1634-04-4; ADDITIVE; ALKANE; ASSOCIATION; BLENDING; BOILING POINT; *BRANCHED CHAIN; *C5; C6; COMBUSTION; **COMPOSITION;** COMPOUNDS; CONCENTRATION; DISTILLATION RANGE; ENERGY; ENGINE; *ETHER; *EVAPORATION; HEXANES; HYDROCARBON; INTERNAL COMBUSTION ENGINE; LIQUID; MEETING PAPER; MIXING; ***MOTOR FUEL; *MOTOR GASOLINE;** OCTANE BOOSTER; OPERATING CONDITION; PENTANES; *PHASE CHANGE; PHYSICAL PROPERTY; SAE; *SATURATED CHAIN; *SINGLE STRUCTURE TYPE; SPARK IGNITION ENGINE; TEMPERATURE; TEMPERATURE 20 TO 40 C; *TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *USE; VAPOR PRESSURE

LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE

LT ALKANE; C5; C6; COMPOUNDS; HEXANES; HYDROCARBON; PENTANES; SATURATED CHAIN; SINGLE STRUCTURE TYPE

ATM Template not available

L27 ANSWER 28 OF 45 APILIT COPYRIGHT 1999 ELSEVIER

AN 92:2784 APILIT;APILIT2

DN 3901412

TI Use NIR [(near-IR)] spectroscopy for on-line gasoline analysis

AU Chen Z; Feng X

CS Logistical Engineering College, China

SO Hydrocarbon Processing International Edition V71 N.1 94-96 (January 1992) ISSN: 0018-8190

DT Journal

LA English

AB Use NIR [(near-IR)] spectroscopy for on-line gasoline analysis. A NIR spectroscopic method has been developed for determining the distillation ranges of gasolines with the aid of multivariate statistics. The method exploits the fact that most of the absorption bands in the NIR spectral region arise from overtones or combinations of the C-H stretching vibrations of absorbing functional groups (e.g., methyl, methylene, olefinic, and aromatic groups) of the hydrocarbon molecules; e.g., the more aromatics in gasoline, the higher is the distillation end temperature. The method uses the three optimal absorption peaks (at 1193.2, 1208.2, and 1153.1 nm) in the second overtone region. Initial, final, and three intermediate (10, **50**, and 90%) **distillation temperatures** of gasolines from two refineries were determined by the new method, in excellent agreement with the distillation ranges determined by the standard GB225-77 distillation method. Graph and tables.

CC **MOTOR FUELS;** PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT *ABSORPTION SPECTROSCOPY; *ANALYTICAL METHOD; AROMATIC; AROMATIC HYDROCARBON; BENZENE RING; *BOILING POINT; **COMPOSITION;** COMPOUNDS; DEFORMATION; DISTILLATION; *DISTILLATION RANGE; ELECTROMAGNETIC WAVE; ELONGATION; FINAL BOILING POINT; GASOLINE STOCK; HYDROCARBON; INDUSTRIAL PLANT; INFRARED RADIATION; *INFRARED SPECTROSCOPY; MATHEMATICS; ***MOTOR FUEL; *MOTOR GASOLINE;** NEAR INFRARED RADIATION; OIL REFINERY; OLEFIN; ON STREAM; OPERATING CONDITION; *PHYSICAL PROPERTY; PHYSICAL SEPARATION; RADIATION; SATURATED CHAIN; *SPECTRAL ANALYSIS; STATISTICAL ANALYSIS; *TRANSITION TEMPERATURE; UNSATURATED; *USE; VIBRATION

LT COMPOUNDS; SATURATED CHAIN
LT COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON
ATM Template not available

L27 ANSWER 29 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:14807 APILIT;APILIT2
DN 3907027
TI Effects of California Phase 2 reformulated gasoline specifications on exhaust emission reduction
AU Takei Y; Hoshi H; Kato M; Okada M; Abe K
CS Toyota Motor Corp
SO SAE International Fuels and Lubricants Meeting (San Francisco 10/19-22/92) Paper N.922179 (1992) 10P ISSN: 0148-7191
DT Conference
LA English
AB Effects of California Phase 2 reformulated gasoline specifications on exhaust emission reduction. The effect of various fuels on emissions was measured using four autos with multi-port fuel injection, exhaust gas recirculation, and a three way catalyst in the 1975 EPA Federal Test Procedure. Reducing the fuel's 90% distillation temperature from 180.degree. to 140.degree.C lowered NMHC emissions 22% in one vehicle and 55% in a second vehicle. NMHC emissions were not strongly correlated with the fuel's **50% distillation temperature.**
Lowering the fuel's specific O(sub)3 reactivity led to reduced exhaust specific O(sub)3 reactivity. The exhaust olefin content was correlated with the fuel's MTBE content. Reducing benzene, monoalkylbenzenes, dialkylbenzenes, and trialkylbenzenes in fuel lowered the amount of individual aromatic compounds in the exhaust gas. The fuel sulfur level affected exhaust emissions more than had been previously reported by lowering catalyst efficiency, but this effect could be reversed by running the engine with low sulfur (2 ppm) fuel at a 700.degree.C engine-out temperature. Tables, graphs, and 10 references.
CC AIR POLLUTION SOURCES; HEALTH & ENVIRONMENT; **MOTOR FUELS;** PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 10028-15-6; 1634-04-4; 71-43-2; ACTIVITY; ADDITIVE; *AIR POLLUTANT; AROMATIC; AROMATIC HYDROCARBON; ASSOCIATION; AUTOMOBILE; AUTOMOTIVE ENGINE; *AUTOMOTIVE EXHAUST GAS; BENZENE; BENZENE CONTENT; BENZENE RING; BOILING POINT; BRANCHED CHAIN; C5; C6; CALIFORNIA; CATALYST; CATALYST ACTIVITY; CATALYST POISON; CATALYST POISONING; **COMPOSITION;** COMPOUNDS; CONCENTRATION; DEGREE OF UNSATURATION; DETERIORATION; DISTRICT 5; ELEMENT; ENGINE; ENGINE TEST; *ENVIRONMENTAL PROTECTION; ETHER; *EXHAUST GAS; FUEL INJECTION; GOVERNMENT; GROUP VIA; HYDROCARBON; INJECTION; MATERIALS TESTING; MEETING PAPER; ***MOTOR FUEL; *MOTOR GASOLINE;** MOTOR VEHICLE; NATIONAL; NONMETHANE HYDROCARBONS; NORTH AMERICA; OCTANE BOOSTER; OPERATING CONDITION; OUTGOING; OXYGEN; OXYGENATE CONTENT; OZONE; PHYSICAL PROPERTY; *POLLUTANT; QUANTITY; RECYCLING; *REFORMULATED GASOLINE; REID VAPOR PRESSURE; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SPECIFICATION; SULFUR CONTENT; SULFUR ORGANIC; TEMPERATURE; TEMPERATURE 600 C AND HIGHER; TERT-BUTYL METHYL ETHER; THERMODYNAMIC PROPERTY; THREE WAY CATALYST; TRANSITION TEMPERATURE; US ENVIRONMENTAL PROTECTION AGCY; USA; *USE; VAPOR PRESSURE; *WASTE GAS; *WASTE MATERIAL
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON; NONMETHANE HYDROCARBONS; POLLUTANT; WASTE MATERIAL
LT 10028-15-6; ELEMENT; GROUP VIA; OXYGEN; OZONE
LT 1634-04-4; ADDITIVE; BRANCHED CHAIN; C5; ETHER; OCTANE BOOSTER; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE
LT 71-43-2; BENZENE; BENZENE RING; C6; HYDROCARBON; SINGLE STRUCTURE TYPE
LT AROMATIC HYDROCARBON; BENZENE RING; COMPOUNDS; HYDROCARBON; QUANTITY; SATURATED CHAIN
LT CATALYST POISON; COMPOUNDS; SULFUR ORGANIC
LT OPERATING CONDITION; OUTGOING; TEMPERATURE; TEMPERATURE 600 C AND HIGHER
ATM Template not available

L27 ANSWER 30 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:9549 APILIT;APILIT2
DN 3904643
TI California's Phase 2 reformulated gasoline program
AU Fletcher R D; Donohoue D E
CS CARB
SO AWMA 85th Annual Meeting (Kansas City, MO 6/21-26/92) Paper N.92-91.06 11P
DT Conference
LA English
AB California's Phase 2 reformulated gasoline program. The California Phase 2 reformulated gasoline regulations were approved on 11/22/91, and included limits on the Rvp, sulfur, aromatic hydrocarbon, benzene, olefin, and oxygen content, and **50** and 90% **distillation temperatures**. Also, flat standards, and averaging and cap standards were set. The Phase 2 reformulated gasoline regulations required that all gasoline sold as a motor vehicle fuel in California meet specified standards for these eight gasoline properties. For each property, there was a flat standard applied to the gasoline when it was initially sold from the production facility. For the Rvp, it was 7.0 psi; for sulfur, 40 wt ppm; aromatic hydrocarbons, 25 vol %; benzene, 1.00 vol %; olefins, 6.0 vol %; oxygen, 1.8 wt % minimum and 2.2 wt % maximum; T90, 300.degree.F; and T50, 210.degree.F. A producer could choose either the flat standard or a more stringent standard that could be met on average. The cap standard would be an absolute limit applying to all gasoline whenever it was sold in the distribution system. Tables.
CC HEALTH & ENVIRONMENT; LEGAL CONSIDERATIONS; **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; STANDARDIZATION
CT AROMATIC; BENZENE CONTENT; BOILING POINT; BUSINESS OPERATION; *CALIFORNIA; **COMPOSITION**; CONCENTRATION; DEGREE OF UNSATURATION; DISTILLATION RANGE; *DISTRICT 5; *ECONOMIC FACTOR; *LEGAL CONSIDERATION; MARKETING; MEETING PAPER; ***MOTOR FUEL**; ***MOTOR GASOLINE**; *NORTH AMERICA; OXYGENATE CONTENT; PHYSICAL PROPERTY; *REFORMULATED GASOLINE; REID VAPOR PRESSURE; *SPECIFICATION; SULFUR CONTENT; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *USA; *USE; VAPOR PRESSURE
ATM Template not available

L27 ANSWER 31 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 9
AN 1991-343709 [47] WPIDS
DNC C1991-148301
TI Petrol/gasoline compsn. having research octane number 105 or more - contg. methyl- tert. butyl ether in fractions based on butane-butene pentane, toluene etc..
DC H06
PA (TOFU) TONEN CORP
CYC 1
PI JP 03229796 A 19911011 (199147)* 5p
ADT JP 03229796 A JP 1990-24005 19900202
PRAI JP 1990-24005 19900202
IC C10L001-04
AB JP 03229796 A UPAB: 19981014
Petrol/gasoline compsn. contains 15-25 vol.% of methyl-tert.-butyl ether in a base oil comprising 4-6 vol.% of the butane-butene fraction, 15-25 vol.% of an aliphatic hydrocarbon ingredient based on 5C cpds., 35-45 vol.% of an aromatic hydrocarbon ingredient based on toluene, and 10-20 vol.% of an aromatic hydrocarbon ingredient based on 9-10C cpds. It has a research octane number of at least 105, a lead vapour pressure of 0.5-0.80 kgf/cm2 at 37.8 deg.C, and 10% at a distilling at a temp. of up to 42-52 deg., **50-% distilling** at **temp**. of up to 80-100 deg.C, 90-% distilling at a temp. of up to 140-170 deg.C, and a final distilling temp. of up to 210 deg.C. Another new compsn. contains 20-30 vol.% of the ether in a base oil comprising 4-6 vol.% of the butane-butene fraction, 10-15 vol.% of the 5C-based aliphatic hydrocarbon ingredient, 15-25 vol.% of the toluene-based ingredient, 15-25 vol.% of the 9-to-10C-based aromatic ingredient, and 15-20 vol.% of an alkylate(s)

and has the same properties.
USE/ADVANTAGE - The compsn. has a good starting property, a good accelerating property and a stable driving property (anti-knocking performance) over a wide speed range.
Dwg.0/1

FS CPI
FA AB
MC CPI: H06-B05

L27 ANSWER 32 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD DUPLICATE 10
AN 1991-159432 [22] WPIDS
DNC C1991-068875
TI Lead-free high-performance gasoline - contains methyl tert. butyl ether, catalytically reformed gasoline and catalytically cracked gasoline.
DC H06
PA (MAZN) COSMO SEKIYU KK; (COSM-N) COSMO SOGO KENKYUSHO KK
CYC 1
PI JP 03093894 A 19910418 (199122)*
JP 05053197 B 19930809 (199334) 6p C10L001-18
ADT JP 03093894 A JP 1989-230696 19890906; JP 05053197 B JP 1989-230696 19890906
FDT JP 05053197 B Based on JP 03093894
PRAI JP 1989-230696 19890906
IC C10L001-18
AB JP 03093894 A UPAB: 19931118
Gasoline contains (A) methyl tert.-butyl ether, (B) a catalytically reformed gasoline having a research octane number of at least 95.0, a Reid vapour pressure of at least 0.3 kg/cm2., and a b.pt. range of 28-200 deg.C. opt. after at least partial removal of the 50-to-100-deg.C. fraction, and (C) a catalytically cracked gasoline or a research octane number of at least 90.0, a Reid vapour pressure of 0.5-0.8 kg/cm2., and a b.pt. range of 20-200 deg.C. The gasoline octane number of at least 99.5, a motor octane number of at least 97.5, an aromatic content of up to 50 vol.%, an olefin content of up to 25 vol.%, a content of up to 70 deg.C. fractions of at least 25 vol.%, a **50%-distilled temp**. of up to 105 deg.C. and a 70% distilled temp. of up to 128 deg.C.
Another new gasoline contains the base materials (A) and (B) and (D) an alkylate of a research octane number of at least 93 and a content of 8C fraction of at least 40 vol.%. having the same characteristics.
USE/ADVANTAGE - The gasolines have improved accelerating performance low-temp. smouldering, and operability at room temp. than conventional commercial lead-free gasolines. @(7pp Dwg.No.0/0)
0/0

FS CPI
FA AB
MC CPI: H06-B01

L27 ANSWER 33 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 92:5256 APILIT;APILIT2
DN 3902415
TI The effect of [fuel] volatility on intermediate-temperature driveability with hydrocarbon-only and oxygenated gasolines
AU Graham J P; Evans B; Reuter R M; Steury J H
CS Chevron Research & Technology Co; CRC; Texaco Inc; Amoco Oil Co
SO SAE International Fuels and Lubricants Meeting (Toronto 10/7-10/91) Paper N.912432 14P ISSN: 0148-7191
DT Conference
LA English
AB The effect of [fuel] volatility on intermediate-temperature driveability with hydrocarbon-only and oxygenated gasolines was investigated during a cooperative cold-start and warmup drivability research program, conducted by CRC in Yakima, WA, on 10/9-11/18/89. A total of 15 gasolines, containing either 15 vol % MTBE, or 10% ethanol, or no oxygenates, were

tested in 24 1988 or 1989 model-year vehicles equipped with different fuel delivery systems. The ambient temperature varied between 30.degree. and 56.degree.F. The fuels' volatility ranges were those that may be required of future summertime fuels; mid-range volatilities were specified by the **50% distillation temperature** (T50;
181.degree.-246.degree.F), and front-end volatilities, by Rvp (7.0, 9.0, or 11.5 psi). All the fuels had (RON plus MON)/2 values of .gtoreq. 88 and aromatics (benzene) contents of .ltoreq. 40% (.ltoreq. 3%). T50 had a strong effect on drivability regardless of the fuel system type; Rvp had a smaller effect in carbureted and throttle-body-injected vehicles but not in port-fuel-injected vehicles, which showed the best drivability with all fuels. The MTBE-blended and hydrocarbon fuels showed similar performance, superior to that of the ethanol blends, at the same volatility levels. Diagram, tables, and graphs.

CC CHEMICAL PRODUCTS; **MOTOR FUELS**; OXYGEN COMPOUNDS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM

CT 1634-04-4; 64-17-5; ALCOHOL CONTENT; AMOCO; AROMATIC; ASSOCIATION; AUTOMOBILE; BENZENE CONTENT; BOILING POINT; BRANCHED CHAIN; C2; C5; CARBURETION; CHEVRON; **COMPOSITION**; CONCENTRATION; DISTILLATION RANGE; DISTRICT 5; *DRIVEABILITY; ENGINE OPERATING CONDITION; *ENGINE PERFORMANCE; ENGINE STARTING; *ENGINE TEST; ETHANOL CONTENT; ETHER; ETHYL ALCOHOL; FUEL INJECTION; *FUEL PERFORMANCE; FUEL SYSTEM; GASOHOL; INJECTION; INTAKE VALVE; LOW TEMPERATURE; *MATERIALS TESTING; MEETING PAPER; MIXTURE; MONOHYDROXY; ***MOTOR FUEL**; ***MOTOR GASOLINE**; MOTOR OCTANE; MOTOR VEHICLE; NONE; NORTH AMERICA; OCTANE NUMBER; OPERATING CONDITION; OXYGENATE CONTENT; *PHYSICAL PROPERTY; REID VAPOR PRESSURE; RESEARCH OCTANE; SAE; SATURATED CHAIN; SCIENTIFIC RESEARCH; SEASONAL; SINGLE STRUCTURE TYPE; SUMMER; TEMPERATURE; TEMPERATURE -10 TO 20 C; TERT-BUTYL METHYL ETHER; TEXACO; *THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; USA; *USE; VALVE; *VAPOR PRESSURE; WARMUP; WASHINGTON

LT 1634-04-4; BRANCHED CHAIN; C5; ETHER; MOTOR FUEL; SATURATED CHAIN; SINGLE STRUCTURE TYPE; TERT-BUTYL METHYL ETHER; USE

LT 64-17-5; C2; ETHYL ALCOHOL; MONOHYDROXY; MOTOR FUEL; SATURATED CHAIN; SINGLE STRUCTURE TYPE; USE

LT COMPOSITION; NONE; OXYGENATE CONTENT

LT MOTOR FUEL; MOTOR GASOLINE; SEASONAL; SUMMER; USE

ATM Template not available

L27 ANSWER 34 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1991-032066 [05] WPIDS

DNC C1991-013812

TI Hydrocarbon solvent, for cleaning agent - is prepd. by thermally cracking petroleum hydrocarbon and hydrogenating obtd. gasoline prepd.

DC H04 H08

PA (MAZP) MARUZEN PETROCHEM CO LTD

CYC 1

PI JP 02300291 A 19901212 (199105)*
JP 06104628 B2 19941221 (199504) 3p C07C013-10

ADT JP 02300291 A JP 1989-120953 19890515; JP 06104628 B2 JP 1989-120953 19890515

FDT JP 06104628 B2 Based on JP 02300291

PRAI JP 1989-120953 19890515

IC B01J023-85; C07B061-00; C07C005-03; C07C007-04; C07C013-10; C10G067-04
ICM C07C013-10
ICS C07B061-00; C07C005-03; C07C007-04; C07C007-10; C10G067-04

ICA B01J023-85

AB JP 02300291 A UPAB: 19930928
New prepn. of hydrocarbon solvent comprises cracking petroleum hydrocarbon thermally to obtain gasoline, and obtd gasoline is selectively hydrogenated. Aromatic hydrocarbons are extracted from hydrogenated prod. with solvent. Obtd. raffinate is distilled to obtain hydrocarbon mixed fraction which has 5% - **distilling temp.** of **50**
-55 deg.C and 95%-distilling temp. of 55-60 deg.C by fractionation test, aniline pt. of 30-50 deg.C, cyclopentane content of 50-80 wt.% and

contains no aromatic hydrocarbons.
    EXAMPLE - Pref. the thermal cracking is carried out at 700 deg.C or higher. Pref. catalysts for selective hydrogenation are e.g nickel, cobalt, molybdenum, and palladium types. Solvent extn. is carried out e.g, with sulpholane, ethylene glycol, DMSO or formyl morpholine.
    USE/ADVANTAGE - Having lower b.pt. and narrower b.pt range, solvent is esp. useful as cleaning agent. It has ease of control of evapn. rate and handling and good recovery. @(3ppDwg.No.0/0)

FS   CPI
FA   AB
MC   CPI: H04-B02; H04-D; H08-D03

L27 ANSWER 35 OF 45 WPIDS COPYRIGHT 1999   DERWENT INFORMATION LTD DUPLICATE 11
AN   1989-044076 [06]   WPIDS
DNC C1989-019472
TI   Non-leaded regular gasoline - has octane number below 95 and specified distn. characteristics.
DC   H06
PA   (NIOC) NIPPON OIL KK
CYC 1
PI   JP 63317593   A 19881226 (198906)*
     JP 04070355   B 19921110 (199249)   C10L001-04
ADT JP 63317593 A JP 1987-154189 19870620; JP 04070355 B JP 1987-154189 19870620
FDT JP 04070355 B Based on JP 63317593
PRAI JP 1987-154189   19870620
IC   ICM C10L001-04
AB   JP 63317593 A UPAB: 19930923
A new nonleaded regular gasoline has a research octane number below 95, distn. characteristics specified by expressions (1) and (II) and a compsn. meeting expressions (III) to (V). (T30' T70' and T90 = 30%-, **50** %-, and 90%-**distilled temp.**, respectively; VO(WHOLE) = olefin content (vol%) in the whole gasoline; VA(WHOLE = aromatic content (vol%) in the whole gasoline; VA (at least T70) = aromatic content (vol%) in the summed fraction distilled at temps. higher than T70.
    USE/ADVANTAGE - Compared with current commercial nonleaded regular gasoline, the gasoline has improved accelerating characteristics. It ha
    also has notably improved startability and operatability at low temps.(e.g. 0 deg.C).
0.0

FS   CPI
FA   AB
MC   CPI: H06-B01

L27 ANSWER 36 OF 45 WPIDS COPYRIGHT 1999   DERWENT INFORMATION LTD
AN   1986-253206 [39]   WPIDS
DNC C1986-109069
TI   Fluid catalytic cracking - using inert diluent to reduce coke make and regenerator temp..
DC   H04
IN   LENGEMANN, R A; MOTT, R W; THOMPSON, G J; VICKERS, A G
PA   (UNVO) UOP INC
CYC 24
PI   EP 195129   A 19860924 (198639)* EN   33p
        R: AT BE CH DE FR IT LI NL SE
     ZA 8509538   A 19860627 (198640)
     AU 8551209   A 19860828 (198641)
     JP 61192793   A 19860827 (198641)
     NO 8505323   A 19860929 (198646)
     BR 8600707   A 19861029 (198650)
     CN 86100906   A 19860903 (198720)
     CS 8601121   A 19870917 (198742)
     HU 44066   T 19880128 (198810)
     ES 8801359   A 19880301 (198816)

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     DD 253576      A  19880127 (198825)
     EP 195129      B  19880817 (198833)   EN
        R: AT BE CH DE FR IT LI NL SE
     DE 3564445     G  19880922 (198839)
     SU 1436885     A  19881107 (198922)
     RO 95271       A  19890330 (198934)
     US 4859313     A  19890822 (198942)
     CA 1264693     A  19900123 (199008)
     KR 9000891     B  19900217 (199101)
     JP 03049316    B  19910729 (199134)
ADT  EP 195129 A EP 1985-116235 19851219; ZA 8509538 A ZA 1985-9538 19851212;
     JP 61192793 A JP 1986-33682 19860218; ES 8801359 A ES 1986-550983
     19860117; SU 1436885 A SU 1986-4020678 19860219; US 4859313 A US
     1986-896569 19860815; JP 03049316 B JP 1986-33682 19860218
PRAI US 1985-703625    19850220; US 1986-896569    19860815
REP  GB 2032947; GB 2114146; US 4311581
IC   B01J008-02; C01G000-00; C10G011-14; C10G035-00; C10G047-30
AB   EP    195129 A UPAB: 19930922
     Catalytic cracking of high-coke-make hydrocarbon feeds with a 50 vol.%
     distn. temp. above 500 deg.F is effected in an FCC unit using a mixt. of
     cracking catalyst (I) and low-coke-make non-catalytic solid particles (II)
     in a (II):(I) ratio of 1:100 to 10:1. (II) comprise a refractory inorganic
     oxide, have a surface area below 5 m2/g and produce less than 0.2 wt.%
     coke in the MAT test.
          Pref. (II) comprises alpha-alumina, produce less than 0.05 wt.% coke
     in the MAT test, and have a particle size of 5-2000 microns. Pref.
     cracking is effected at 850-1400 deg.F and 15-55 psia with a catalyst:oil
     wt. ratio of 1-30:1. The regenerator exit temp. is 1200-1600 deg.F.
          ADVANTAGE - Addn. of (II) reduces the regenerator temp. (by 10-250
     deg.F)without reducing the coke-burning capacity of the regenerator or
     affecting the operation of the cracking reactor.
     0/1
FS   CPI
FA   AB
MC   CPI: H04-B02; H04-F02B

L27  ANSWER 37 OF 45  WPIDS COPYRIGHT 1999   DERWENT INFORMATION LTD
AN   1986-240119 [37]   WPIDS
DNC  C1986-103247
TI   Gasoline compsn. as automotive vehicle fuel - includes phthalic di ester
     addn. to gasoline fraction.
DC   E14 H06
IN   NOMURA, H; SATOH, S; YOSHIDA, E
PA   (NIOC) NIPPON OIL KK
CYC  5
PI   EP 194015      A  19860910 (198637)* EN   11p
        R: DE FR GB
     JP 61176694    A  19860808 (198638)
     US 4723965     A  19880209 (198809)
     EP 194015      B  19890510 (198919)   EN
        R: DE FR GB
     DE 3663261     G  19890615 (198925)
     JP 03071476    B  19911113 (199149)
ADT  EP 194015 A EP 1986-300541 19860128; JP 61176694 A JP 1985-17120 19850131;
     US 4723965 A US 1986-822032 19860124; JP 03071476 B JP 1985-17120 19850131
PRAI JP 1985-17120     19850131
REP  FR 1237383; GB 1145930; US 2236590; US 2291522; US 3320041; US 3660056; US
     2235590
IC   C10L001-18
AB   EP    194015 A UPAB: 19930922
     A gasoline compsn. comprises a gasoline fraction having an aromatics
     content of greater than 35 vol.% and a 50% distn. temp. of 85 to 125
     deg.C. The compsn. includes the addn. of 0.05 to 5 wt.% of a phthalic acid
     diester in which the alkyl gps. contains between 1 to 8 carbon atoms.
          A gasoline compsn. includes a phthalic acid diester represented by
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the formula (I) where R1 and R2 are each an alkyl gp. of 1-8C atoms, pref 1-4C atoms.
USE/ADVANTAGE - Gasoline or petrol compsns. suitable for use as a fuel for motor vehicles. The compsn. inhibits spark plug fouling.
0/0
FS CPI
FA AB
MC CPI: E10-G02F; H06-B01; H06-D03

L27 ANSWER 38 OF 45 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1986-226908 [35] WPIDS
DNC C1986-097748
TI High aromatics gasoline - contains alkaline earth metal salt which eliminates spark plug fouling.
DC E12 H06
IN NOMURA, H; SATOH, S; YOSHIDA, E
PA (NIOC) NIPPON OIL KK
CYC 5
PI EP 192323 A 19860827 (198635)* EN 18p
R: DE FR GB
JP 61166886 A 19860728 (198637)
JP 61174298 A 19860805 (198637)
JP 61174299 A 19860805 (198637)
US 4744800 A 19880517 (198822)
JP 03071477 B 19911113 (199149)
JP 03074715 B 19911127 (199151)
JP 03074716 B 19911127 (199151)
EP 192323 B1 19920701 (199227) EN 9p C10L001-18
R: DE FR GB
DE 3685830 G 19920806 (199233) C10L001-18
ADT EP 192323 A EP 1986-300219 19860115; JP 61166886 A JP 1985-7130 19850118; JP 61174298 A JP 1985-14795 19850129; JP 61174299 A JP 1985-14796 19850129; US 4744800 A US 1986-818353 19860113; JP 03071477 B JP 1985-14796 19850129; JP 03074715 B JP 1985-7130 19850118; JP 03074716 B JP 1985-14795 19850129; EP 192323 B1 EP 1986-300219 19860115; DE 3685830 G DE 1986-3685830 19860115, EP 1986-300219 19860115
FDT DE 3685830 G Based on EP 192323
PRAI JP 1985-7130 19850118; JP 1985-14795 19850129; JP 1985-14796 19850129
REP 1.Jnl.Ref; FR 1194439; FR 1237383; FR 1582348; FR 2391186; GB 1035819; GB 1184020; GB 579369; JP 51122106; LU 53755; US 2766291; US 2781403; US 3105810; US 3898055
IC ICM C10L001-18
ICS C10L001-24
AB EP 192323 A UPAB: 19930922
A method of inhibiting spark plug fouling when using as a fuel for an automobile engine a lead-free gasoline composition comprising a gasoline fraction having an aromatics content of greater than 35 volume percent and a **50** percent **distillation temperature** of 85 to 125 deg.C, characterised in that an alkaline earth metal salt selected from alkaline earth metal phenates and alkaline earth metal salicylates is added to said gasoline fraction in an amount of 0.01 to 1.0 weight % thereof, prior to the feeding of said gasoline composition to said automobile engine.
0/0
FS CPI
FA AB
MC CPI: E05-B01; H06-B01; H06-D04

L27 ANSWER 39 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 85:7702 APILIT;APILIT2
DN 3208439
TI IGNITION QUALITY RATING METHODS FOR DIESEL FUELS...A CRITICAL APPRAISAL
AU GUELDER O L; GLAVINCEVSKI B; BURTON G F
CS NATL. RES. COUNC. CAN.

SO SAE INT. FUELS LUBR. MEET. (TULSA 10/21-24/85) PAP. N.852080 12P
LA English
AB Ignition Quality Rating Methods for Diesel Fuels...A Critical Appraisal. Five published correlations of cetane index with various combinations of fuel density, midboiling point, aniline point, viscosity, API gravity, hydrogen content, and 10%, **50%**, and 90% **distillation temperatures** intended to indicate fuel molecular size and paraffin and aromatic contents were tested against a data base of 134. U.S. and Canadian diesel fuels including residual fuels, light distillate fuel oil, and tar sand oils; the standard deviation of the residuals ranged from 4.3 to 5.7 cetane numbers. A sixth combination of these properties intended to distingush between n- and isoalkanes showed 2.8 cetane number standard deviation. No correlation at all was found between cetane number and carbon aromaticity determined by NMR spectroscopy. Best results, with a cetane number error smaller than the spread in multiple engine determinations, was obtained with a combination of the contents of six hydrogen dypes, e.g. alkyl hydrogens .beta. to an aromatic ring, determined directly from the proton NMR spectrum. Graphs, spectrum, table, and 20 references.
CC **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; PETROLEUM SUBSTITUTES; TAR SANDS
CT ANALYTICAL METHOD; ANILINE POINT; AROMATIC; AROMATICITY; ASSOCIATION; BENZENE RING; BOILING POINT; BRANCHED ALKANE; BRANCHED CHAIN; CANADA; *CETANE NUMBER; COMBUSTION; **COMPOSITION**; COMPOUNDS; COMPRESSION IGNITION ENGINE; DATA BASE; *DATA CORRELATION; DENSITY; DIESEL ENGINE; *DIESEL FUEL; DIESEL INDEX; DISTILLATION RANGE; ENGINE; *FUEL PERFORMANCE; HYDROCARBON; HYDROGEN CONTENT; IGNITION; INFORMATION SERVICE; INTERNAL COMBUSTION ENGINE; MEETING PAPER; MOLECULAR STRUCTURE; MOLECULE; ***MOTOR FUEL**; NMR SPECTROSCOPY; NORMAL ALKANE; NORTH AMERICA; PARAFFINIC; PETROLEUM FRACTION; PETROLEUM RESIDUE; PHYSICAL PROPERTY; QUALITY; SAE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; SIZE; SPECTRAL ANALYSIS; STRAIGHT CHAIN; SUBSTANCE DETERMINED; TRANSITION TEMPERATURE; UNKNOWN CARBON COUNT; USA; *USE; VISCOSITY
LT AROMATICITY; DIESEL FUEL; MOLECULAR STRUCTURE; MOTOR FUEL; PETROLEUM FRACTION; PETROLEUM RESIDUE; USE
LT BENZENE RING; COMPOUNDS; HYDROCARBON; SATURATED CHAIN; SUBSTANCE DETERMINED
LT BRANCHED ALKANE; BRANCHED CHAIN; HYDROCARBON; SATURATED CHAIN; SINGLE STRUCTURE TYPE; UNKNOWN CARBON COUNT
LT COMBUSTION; IGNITION; QUALITY
LT HYDROCARBON; NORMAL ALKANE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; UNKNOWN CARBON COUNT
LT MOLECULE; SIZE

L27 ANSWER 40 OF 45 APILIT
AN 84:5589 APILIT;APILIT2
DN 3106017
TI THE EFFECT OF INVENTORY ON FUEL QUALITY
EL EFECTO DE LOS INVENTARIOS SOBRE LA CALIDAD DE LOS COMBUSTIBLES.
AU NARANJO J R
CS REFINADORA COSTARRICENSE PET.
SO ASISTENCIA RECIPROCA PET. ESTATAL LATINOAM. - CORP. ESTATAL PET. ECUATORIANA 'PLANNING METHODOL. STATE PET. CORP.' SEMIN. (QUITO 5/14-19/84) BOL. TEC. ARPEL V13 N.2 129-31 (JUNE 1984) ISSN: 0253-6005
LA Spanish
AB The Effect of Inventory on Fuel Quality is analyzed by using a sinusoidal model and a stochastic model of quality variation. These models are applicable to those properties that specify fuel quality, such as volatility and chemical structure. Gasoline was used as an example and, in general, the vapor pressure and the temperature for the 10% distillate indicate the ease of start-up. Its value is controlled by the concentration of low molecular weight paraffinic components, such as pentane. The **temperature** for the **50% distillate** indicates the ease of acceleration and warm-up. Its value is controlled by the concentration of the olefinic components. The

temperature for the 90% distillate indicates the proportion of less-volatile components. Its value is controlled by the concentration of the aromatic components. The chemical structure gives an indication of the fuel yield. (in Spanish)
CC **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM
CT 109-66-0; ACCELERATION; AROMATIC; **COMPOSITION**; CONCENTRATION; CONTROL; C5; DEGREE OF UNSATURATION; DISTILLATION; *ECONOMIC FACTOR; ENGINE PERFORMANCE; ENGINE STARTING; HYDROCARBON; LOW MOLECULAR WEIGHT; MATHEMATICS; MEETING PAPER; MODEL; MOLECULAR STRUCTURE; MOLECULAR WEIGHT; ***MOTOR FUEL; *MOTOR GASOLINE**; OPERATING CONDITION; PARAFFINIC; PENTANE; PHYSICAL PROPERTY; PHYSICAL SEPARATION; *PRODUCT QUALITY; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; *SUPPLY; TEMPERATURE; THERMODYNAMIC PROPERTY; *USE; VAPOR PRESSURE; VELOCITY; WARMUP
LT 109-66-0; C5; HYDROCARBON; MOTOR FUEL; PENTANE; SATURATED CHAIN; SINGLE STRUCTURE TYPE; STRAIGHT CHAIN; USE
LT MATHEMATICS; MODEL
LT MOLECULAR STRUCTURE; MOTOR FUEL; MOTOR GASOLINE; USE

L27 ANSWER 41 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 84:7543 APILIT;APILIT2
DN 3108355
TI DEVELOPMENT OF THE CANADIAN GENERAL STANDARDS BOARD (CGSB) CETANE INDEX
AU STEERE D E; CANADIAN GENERAL STANDARDS BOARD
CS ESSO PET. CAN.
SO SAE FUELS LUBR. MEET. (BALTIMORE 10/8-11/84) PAP. N.841344 31P
LA English
AB Development of the Canadian General Standards Board (CGSB) Cetane Index. A task force under the auspices of the CGSB, using a series of diesel fuels with cetane numbers from 28 to 63, developed an equation for calculating a cetane index, a prediction of the ASTM D613 cetane number. This index is a function of the ASTM D611 aniline point; the ASTM D86 10%, **50%**, and 90% **distillation temperatures**; the ASTM D1298 or D4052 density; and the ASTM D445 viscosity at 40.degree.C. The index is superior to previous indexes, especially for Canadian diesel fuels with cetane numbers from 30 to 50, including fuels containing straight-run and/or catalytically-cracked petroleum distillates and/or Athabasca tar sand distillates; but not for fuels containing cetane improver additives. The index is now used by several Canadian refiners, and is being balloted by the CGSB Petroleum Committee. Graphs and tables. (Copies of Pap. #841344 are available at $4.00 from SAE Customer Service, Dep. 676, 400 Commonwealth Drive, Warrendale, Pa. 15096)
CC **MOTOR FUELS**; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; PETROLEUM SUBSTITUTES; TAR SANDS
CT ADDITIVE; ALBERTA; ANILINE POINT; ASSOCIATION; ASTM; ATHABASCA AREA; BOILING POINT; CANADA; CATALYTIC CRACKING; *CETANE NUMBER; CETANE NUMBER IMPROVER; **COMPOSITION**; CRUDE OIL; *DATA CORRELATION; DENSITY; *DIESEL FUEL; DISTILLATION RANGE; EQUATION; ESSO; *FUEL PERFORMANCE; MATHEMATICS; MEETING PAPER; ***MOTOR FUEL**; NATIONAL; NONE; NORTH AMERICA; OPERATING CONDITION; PETROLEUM DISTILLATE; PETROLEUM FRACTION; PHYSICAL PROPERTY; PRIOR TREATMENT; SAE; SPECIFICATION; STRAIGHT RUN PRODUCT; TAR SAND OIL; TEMPERATURE; TEMPERATURE 40 TO 80 C; TRANSITION TEMPERATURE; *USE; VISCOSITY
LT ADDITIVE; CETANE NUMBER IMPROVER; NONE; USE
LT CATALYTIC CRACKING; PRIOR TREATMENT
LT CRUDE OIL; DIESEL FUEL; MOTOR FUEL; TAR SAND OIL; USE
LT DIESEL FUEL; MOTOR FUEL; PETROLEUM DISTILLATE; PETROLEUM FRACTION; USE

L27 ANSWER 42 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 80:2511 APILIT;APILIT2
DN 2703069
TI THE EFFECTS OF DIESEL FUEL PROPERTIES ON (ENGINE) PERFORMANCE, SMOKE, AND EMISSIONS.
AU GROSS G P; MURPHY K E

CS EXXON RES. ENG. CO. ; MACK TRUCKS INC.
SO ASME ENERGY TECHNOL. CONF. (HOUSTON 11/5-9/78) PAP. N.78-DGP-26 J. ENG. POWER V101 N.4 524-32 (OCT. 1979)
LA English; English
AB The Effects of Diesel Fuel Properties on [Engine] Performance, Smoke, and Emissions. Tests in two engines on 14 fuels, including diesel fuel blends with 10-57% aromatics contents and 2.21-6.95 cs (sq mm/sec) viscosities at 100.degree.F (38.degree.C) and a commercial No. 2 diesel fuel (as reference fuel), showed that the two engines responded similarly to fuel variables, but with some differences in sensitivity. Power output and fuel economy were correlated with the heats of combustion on volume and weight bases, respectively. Smoke increased with the amount of fuel boiling above 640.degree.F (338.degree.C) and was not apparently affected by fuel aromatic content. Emissions of nitrogen oxides and of nitrogen oxides plus hydrocarbons increased with increasing aromatics by itself or with increasing fuel specific gravity and decreasing fuel **50% distillation temperature.** Hydrocarbon emissions decreased with increasing viscosity or cetane number. Carbon monoxide emissions increased with increasing 90% distillation temperature and with decreases in cetane number. The engines were a two-stroke, naturally aspirated type and a four-stroke turbocharged engine tested under full load at several speeds and in Federal 13-mode and smoke-cycle procedures. Tables, graphs, and 11 references.
CC AIR AND WATER CONSERVATION; AIR POLLUTION SOURCES; **MOTOR FUELS;** PETROLEUM REFINING AND PETROCHEM
CT 11104-93-1; 12795-06-1; 630-08-0; 7440-44-0; 7727-37-9; 7782-44-7; *AIR POLLUTANT; AROMATIC; ASME; ASSOCIATION; *AUTOMOTIVE EXHAUST GAS; BOILING POINT; CARBON; CARBON MONOXIDE; CARBON OXIDE; CETANE NUMBER; COMMERCIAL; **COMPOSITION;** COMPOUNDS; COMPRESSION IGNITION ENGINE; DENSITY; DIESEL ENGINE; *DIESEL FUEL; DISTILLATION RANGE; ENGINE; ENGINE LOAD; ENGINE OPERATING CONDITION; *ENGINE PERFORMANCE; ENGINE TEST; EQUIPMENT TESTING; ESSO; *EXHAUST GAS; FOUR CYCLE ENGINE; FUEL CONSUMPTION; FUEL PERFORMANCE; GROUP IVA; GROUP VA; GROUP VIA; HEAT OF COMBUSTION; HEAT OF REACTION; HYDROCARBON; IDE; INTERNAL COMBUSTION ENGINE; MATERIALS TESTING; MEETING PAPER; ***MOTOR FUEL;** NITROGEN; NITROGEN OXIDE; NUMBER 2 DIESEL FUEL; OXYGEN; PARTICULATES; PHYSICAL PROPERTY; POWER; REFERENCE MATERIAL; SMOKE; SUPERCHARGER; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; TWO CYCLE ENGINE; VELOCITY; VISCOSITY
LT 11104-93-1; 7727-37-9; 7782-44-7; AIR POLLUTANT; GROUP VA; GROUP VIA; IDE; NITROGEN; NITROGEN OXIDE; OXYGEN
LT AIR POLLUTANT; COMPOUNDS; HYDROCARBON
LT 12795-06-1; 630-08-0; 7440-44-0; 7782-44-7; AIR POLLUTANT; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN
LT DIESEL FUEL; MOTOR FUEL; NUMBER 2 DIESEL FUEL; REFERENCE MATERIAL

L27 ANSWER 43 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 71:9107 APILIT;APILIT2
DN 1809209
TI THE EFFECT OF (HIGH) GASOLINE VOLATILITY ON COLD STARTING AND WARM-UP BEHAVIOR OF MODERN PASSENGER CAR ENGINES
AU WEISE E; HEILMANN G
SO 22ND DEUT GES MINERALOELWISS & KOHLECHEM ANNU MEET (AUG 1971) (BERLIN 10/2/70) ERDOEL KOHLE ERDGAS PETROCHEM V24 N.8 529-34
LA UNAVAILABLE
AB THE EFFECT OF (HIGH) GASOLINE VOLATILITY ON COLD STARTING AND WARM-UP BEHAVIOR OF MODERN PASSENGER CAR ENGINES was beneficial in tests of 17 1968-1970 German car engines operated at -10degreeC with six research, and four commercial, fuels. High volatility also minimized motor oil dilution and reduced carbon monoxide and hydrocarbon emissions under European test cycle conditions. However, raising the ambient temperature to +5degreeC considerably improved the performance of low volatile fuels, and engine characteristics had a greater effect on emissions than fuel volatility. The percentage of fuel distilling at 100degreeC or the **temperature** required for **distilling 50%** by vol were useful parameters for predicting fuel performance. Graphs and tables. (in

German)
CC AIR AND WATER CONSERVATION; AIR POLLUTION SOURCES; **MOTOR FUELS;**
PETROLEUM REFINING AND PETROCHEM
CT 12795-06-1; 630-08-0; 7440-44-0; 7782-44-7; AIR POLLUTANT; AIR POLLUTION; AUTOMOBILE; AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE ENGINE; AUTOMOTIVE EXHAUST GAS; BLOWBY; BOILING POINT; BRITISH PETROLEUM; CARBON; CARBON MONOXIDE; CARBON OXIDE; COMMERCIAL; **COMPOSITION**; COMPOUNDS; CONCENTRATION; CONTROL; CYCLE; DATA CORRELATION; DISTILLATION; DISTILLATION RANGE; ENGINE; ENGINE PERFORMANCE; ENGINE STARTING; *ENGINE TEST; EXHAUST GAS; *FUEL PERFORMANCE; GROUP IVA; GROUP VIA; HYDROCARBON; IDE; LOW TEMPERATURE; LUBRICANT/INDUSTRIAL OIL; *MATERIALS TESTING; MEETING PAPER; ***MOTOR FUEL***; ***MOTOR GASOLINE***; MOTOR OIL; MOTOR VEHICLE; MULTIPLE; OPERATING CONDITION; OXYGEN; PHYSICAL PROPERTY; PHYSICAL SEPARATION; POLLUTION CONTROL; PREVENTION; TEMPERATURE; TEMPERATURE -10 TO 20 C; TEMPERATURE -100 TO -10 C; TEMPERATURE 80 TO 125 C; *THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; *VAPOR PRESSURE; VOLUME; WARMUP; WASTE MATERIAL; WEST GERMANY; WESTERN EUROPE
LT 12795-06-1; 630-08-0; 7440-44-0; 7782-44-7; AIR POLLUTANT; AIR POLLUTION; AUTOMOTIVE EXHAUST GAS; CARBON; CARBON MONOXIDE; CARBON OXIDE; EXHAUST GAS; GROUP IVA; GROUP VIA; IDE; OXYGEN; WASTE MATERIAL
LT AIR POLLUTANT; AIR POLLUTION; AUTOMOTIVE EXHAUST GAS; COMPOUNDS; EXHAUST GAS; HYDROCARBON; WASTE MATERIAL
LT AUTOMOTIVE ENGINE; ENGINE; MULTIPLE
LT CYCLE; ENGINE TEST; MATERIALS TESTING

L27 ANSWER 44 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 70:9624 APILIT;APILIT2
DN 1709655
TI THE EFFECT OF GASOLINE CHARACTERISTICS ON AUTOMOTIVE EXHAUST EMISSION
AU DOELLING R P; GERBER A F; WALSH M P
SO ASTM ''EFFECT OF AUTOMOT EMISSION REQUIREMENTS ON GASOLINE CHARACTERISTICS'' SYMP (TORONTO 6/21-26/70) 22P
LA UNAVAILABLE
AB THE EFFECT OF GASOLINE CHARACTERISTICS ON AUTOMOTIVE EXHAUST EMISSION Dynamometer studies by the Federal test procedure on two cars equipped with different pollution control devices showed that fuel composition had no effect on exhaust hydrocarbon emission levels or smog-forming potential. The percentages of aromatics, olefins and saturates in the exhaust increased with increased percentages of the corresponding hydrocarbon type in the fuel. Hydrocarbon and carbon monoxide emission levels were not affected by changes in the **50**% or 90% **distillation temperatures** of the fuel. Exhaust hydrocarbon levels of vehicles operated on fuel leaded to >0.5 g/gal were significantly greater than the exhaust hydrocarbon levels of vehicles operated on unleaded fuel. Fuel leaded to only 0.25 g/gal also increased exhaust hydrocarbon emission levels but not as much; carbon monoxide emission levels were not affected by lead. As lead content increased, equilibrium hydrocarbon emission levels were obtained after fewer hours of engine operation. Graphs, tables, and 17 references.
CC AIR AND WATER CONSERVATION; AIR POLLUTION; **MOTOR FUELS;**
PETROLEUM REFINING AND PETROCHEM
CT 12795-06-1; 630-08-0; 7439-92-1; 7440-44-0; 7782-44-7; ADDITIVE; AIR POLLUTANT; *AIR POLLUTION; ANTIKNOCK AGENT; AROMATIC; *AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EMISSION CONTROL EQUIP; AUTOMOTIVE EXHAUST GAS; BENZENE RING; BOILING POINT; CARBON; CARBON MONOXIDE; CARBON OXIDE; **COMPOSITION**; COMPOUNDS; CONCENTRATION; CONTROL; DISTILLATION RANGE; DYNAMOMETER; ENGINE TEST; EQUILIBRIUM; EXHAUST GAS; FUEL PERFORMANCE; GOVERNMENT; GROUP IVA; GROUP VIA; HYDROCARBON; IDE; INSTRUMENT; LEAD; LEADED GASOLINE; MATERIALS TESTING; MEETING PAPER; **MOTOR FUEL**; ***MOTOR GASOLINE***; NORTH AMERICA; OLEFIN; ORGANOMETALLIC; OXYGEN; PARTICULATES; PHYSICAL PROPERTY; POLLUTION CONTROL; POLLUTION CONTROL EQUIPMENT; SATURATED CARBOCYCLIC; SATURATED CHAIN; SMOG; SPECIFICATION; TRANSITION TEMPERATURE; UNLEADED GASOLINE; UNSATURATED; USA; WASTE MATERIAL
LT 7439-92-1; ADDITIVE; ANTIKNOCK AGENT; COMPOUNDS; GROUP IVA; LEAD;

ORGANOMETALLIC
LT AIR POLLUTANT; AIR POLLUTION; BENZENE RING; COMPOUNDS; HYDROCARBON; WASTE MATERIAL
LT AIR POLLUTANT; AIR POLLUTION; COMPOUNDS; HYDROCARBON; OLEFIN; UNSATURATED; WASTE MATERIAL
LT AIR POLLUTANT; AIR POLLUTION; COMPOUNDS; HYDROCARBON; SATURATED CARBOCYCLIC; SATURATED CHAIN; WASTE MATERIAL
LT 12795-06-1; 630-08-0; 7440-44-0; 7782-44-7; AIR POLLUTANT; AIR POLLUTION; CARBON; CARBON MONOXIDE; CARBON OXIDE; GROUP IVA; GROUP VIA; IDE; OXYGEN; WASTE MATERIAL

L27 ANSWER 45 OF 45 APILIT COPYRIGHT 1999 ELSEVIER
AN 70:9626 APILIT;APILIT2
DN 1709657
TI EVAPORATIVE EMISSIONS...WHICH VOLATILITY FACTORS COUNT
AU AMERICAN PETROLEUM INSTITUTE; U S BUREAU OF MINES; HURN R W
SO ASTM ''EFFECT OF AUTOMOT EMISSION REQUIREMENTS ON GASOLINE CHARACTERISTICS'' SYMP (TORONTO 6/21-26/70) 10P
LA UNAVAILABLE
AB EVAPORATIVE EMISSIONS...WHICH VOLATILITY FACTORS COUNT The joint U.S. Bureau of Mines-American Petroleum Institute study [Abstract No. 17-3840] showed that carburetor evaporative loss is related to the 50% distillation point in fuels of equal Reid vapor pressure(Rvp). Among fuels differing in Rvp, carburetor loss is more closely related to the percent of fuel evaporated at 160degreeF. Fuel tanks loss varies systematically with Rvp. Exhaust hydrocarbon emissions increased slghtly with increasing fuel **50% distillation temperature** and/or decreasing Rvp, but API gravity appears to be the fuel characteristics that best correlates with exhaust hydrocarbon emissions. Graphs.
CC AIR AND WATER CONSERVATION; AIR POLLUTION; **MOTOR FUELS;** PETROLEUM REFINING AND PETROCHEM
CT AIR POLLUTANT; *AIR POLLUTION; API; ASSOCIATION; AUTOMOTIVE EMISSION CONTROL; AUTOMOTIVE EXHAUST GAS; *BLOWBY; BOILING POINT; CARBURETOR; **COMPOSITION;** COMPOUNDS; CONCENTRATION; CONTROL; DATA CORRELATION; DENSITY; DISTILLATION RANGE; ENGINE PERFORMANCE; *EVAPORATION LOSS; EXHAUST GAS; FUEL TANK; GOVERNMENT; HYDROCARBON; MEETING PAPER; **MOTOR FUEL; *MOTOR GASOLINE;** NORTH AMERICA; PHYSICAL PROPERTY; POLLUTION CONTROL; STORAGE FACILITY; TANK; THERMODYNAMIC PROPERTY; TRANSITION TEMPERATURE; USA; VAPOR PRESSURE; WASTE MATERIAL
LT AIR POLLUTANT; AIR POLLUTION; COMPOUNDS; HYDROCARBON; MOTOR FUEL; MOTOR GASOLINE; WASTE MATERIAL